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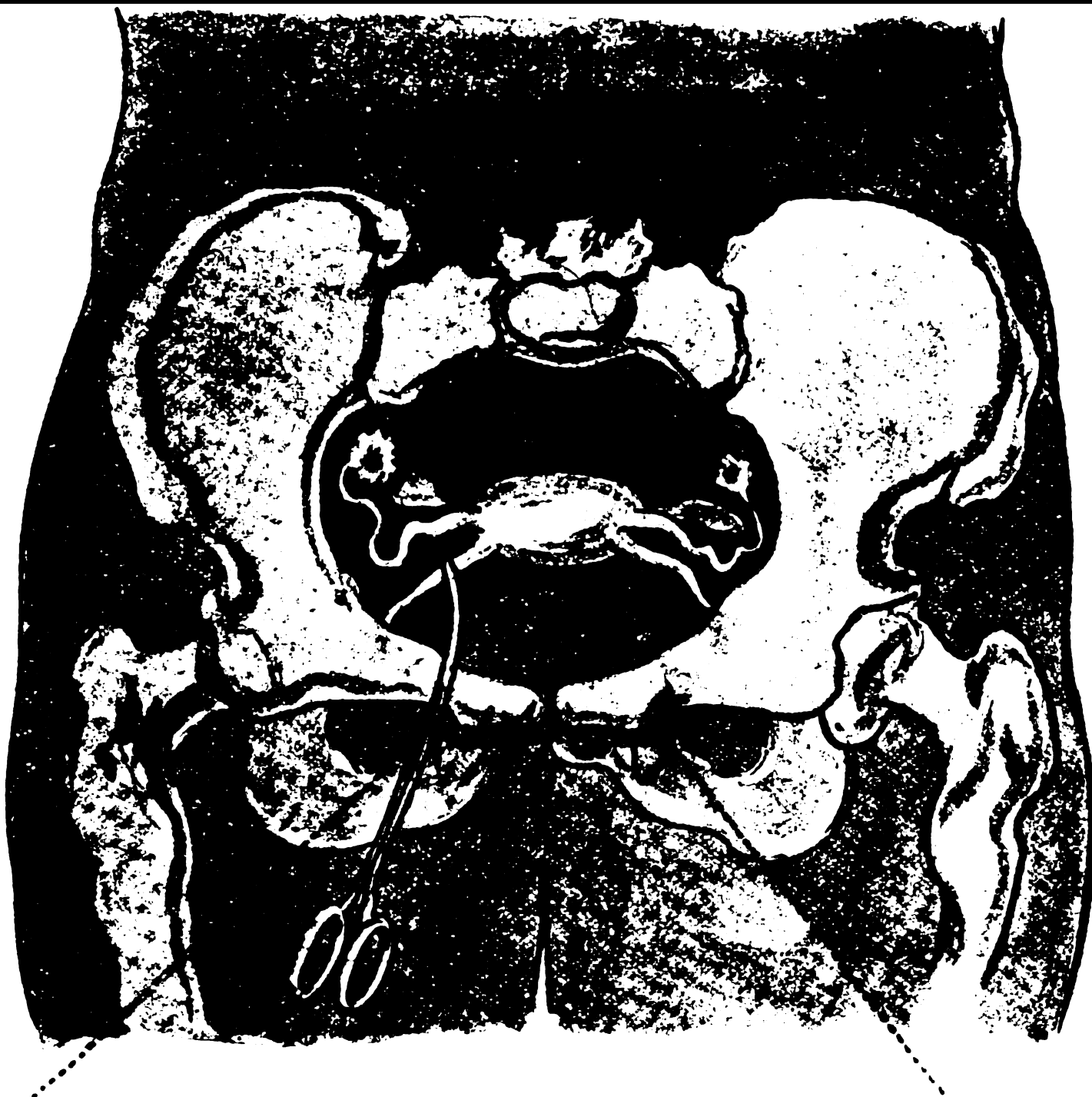
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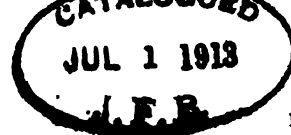
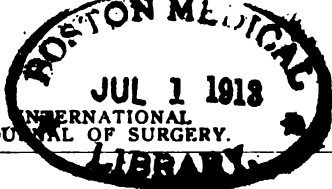


INTERNATIONAL  
JOURNAL OF SURGERY

DEVOTED TO THE THEORY AND PRACTICE OF  
MODERN SURGERY AND GYNECOLOGY

INDEX FOR VOLUME XXV  
JANUARY—DECEMBER  
1912

NEW YORK CITY  
THE INTERNATIONAL JOURNAL OF SURGERY  
100 WILLIAM STREET  
1912



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# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

13024

JANUARY, 1912

No. 1

## Original Articles

### A NEW METHOD OF SHORTENING THE ROUND LIGAMENTS IN RETROVERSION AND PROLAPSE OF THE UTERUS.

By C. W. STROBELL, M.D., Rutland, Vt.

*Attending Surgeon, City Hospital.*

In presenting this preliminary report I regret that I have not a long series of operated cases to accompany it, my list as yet being limited to the one here-

chanical or functional detriment to itself or any other organ or structure.

The case was that of Mrs. X., American, aged thirty-four, a nullipara, married twelve years. On December 13th, Mrs. X. consulted me with regard to severe chronic dysmenorrhea and sterility. She also complained of backache, frequency of micturition and dysuria, purulent leucorrhea, constipation, and general debility. Abdominal palpation elicited considerable tenderness upon pressure in the hypogastric and both iliac regions. Bimanual pelvic examination disclosed a greatly enlarged and tender retroflexed and retroverted uterus. Parametrial induration, tenderness and adhesions made it difficult to map out anything more definite as regards the adnexa.



FIG. 1. a, b, pubic incisions.



FIG. 2. Blunt perforating forceps.

with recorded. I am desirous, however, of having the method thoroughly tested. The technic of this operation was originally and experimentally worked out upon the cadaver in the early part of November, 1911.

On December 16, 1911, I performed the first pubic fixation according to my technic upon the living subject. The immediate results were ideal, answering all the requirements, scientific and practical, of an operation having for its object the restoration of the uterus to its normal position, without me-

Operation: The uterine cavity measured four and one-half inches in depth; a strong fibrous bar posteriorly at the internal os resisted the passage of the curved sounds. This constriction was thoroughly broken down with a Goodell dilator. Much fungoid material was removed with the curette. The uterine cavity was then dried out, and swabbed with pure tincture of iodine. Next a Chamber's intra-uterine stem pessary was placed in the uterine canal, and a small hard rubber ring pessary inserted into the vagina so as to surround the cervix and keep lateral displacing pressure from the base of the stem.

With the patient now placed in the Trendelenburg position, the abdomen was opened in the median line. Routine examination of the abdominal viscera disclosed nothing abnormal except the appendix. Within the pelvic cavity was a mass of old and dense adhesions involving the uterus and adnexa. The ovaries were cystic and greatly enlarged, the tubes hypertrophied, yet patent, the sigmoid adherent to

the left tube and ovary, and a small subserous fibroid projected from the fundus of the uterus. Adhesions were, with great difficulty, severed, the ovaries resected, the appendix removed; the fibroid was shelled out and the heavy uterus brought into position by shortening the round ligaments as follows:

engaged hand was now armed with a half curved, strong and slender, blunt perforating forceps, having a modified Kocher beak. The beak of this instrument was then placed at the bottom of the pubic incision, a quarter of an inch below the pubic spine, at the iliopubic angle, close to the bone, and driven onward, across the iliopectineal line, into the perito-

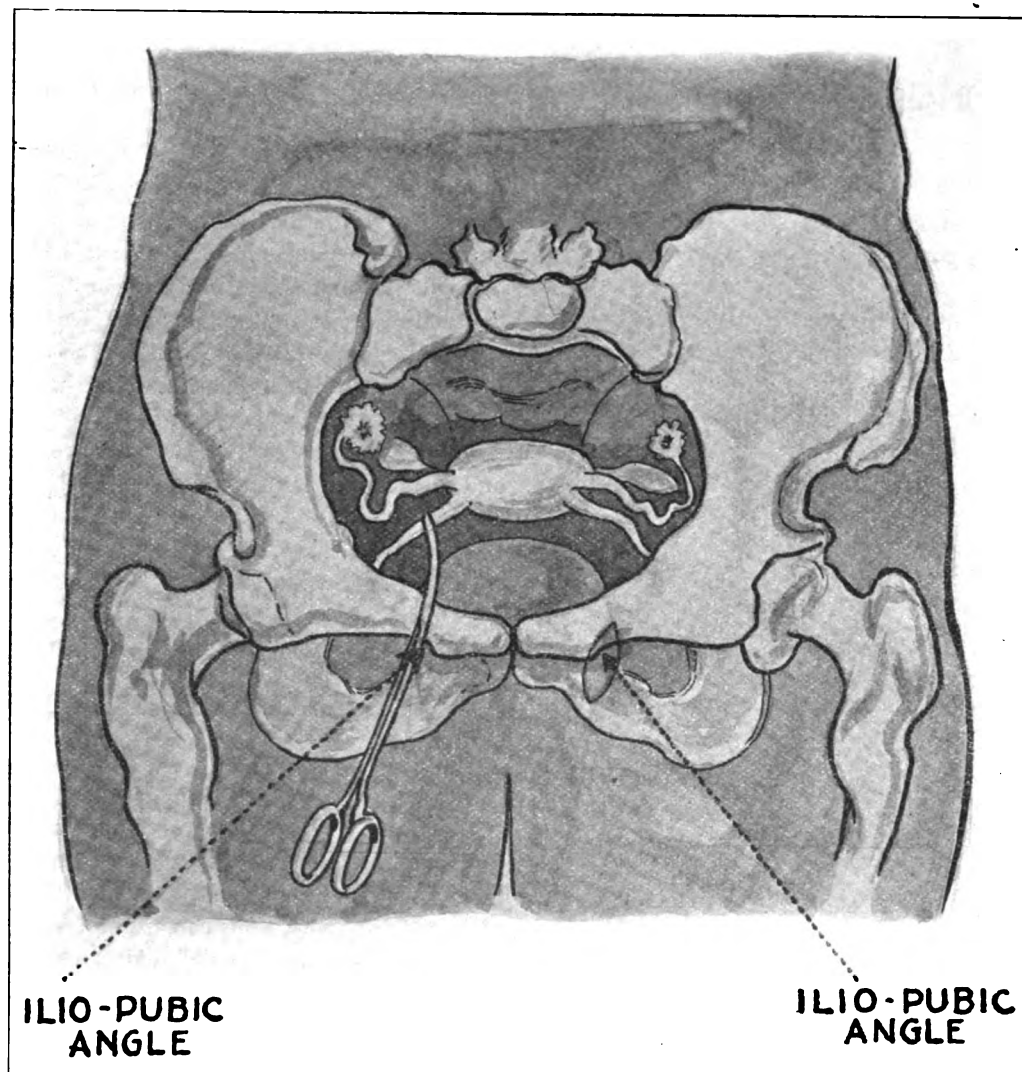


FIG. 3.

First, two vertical incisions were made, each an inch in length, one on either side of the pubes, running parallel with, and slightly external to, the pubic spines; the latter are easily located in spare women—as easily also through these incisions in obese conditions. These incisions included skin and fat only, and did not involve the fascia.

The index finger of the hand within the abdomen was next placed, as a guard and guide, against the inner base of the pubic spine. Externally the dis-

neal cavity, the instrument meantime describing an arc of a circle.

The instrument in its course traversed the strong fascia lata, lower edge of Poupart's ligament, the center of Gimbernat's ligament, the conjoined tendon of the internal abdominal oblique and transversalis, which is inserted into the pubic spine and iliopectineal line, and lastly, the peritoneum. The instrument was then opened and made to grasp the round ligament about two inches from the uterine



cornu, consistent with *taking up the entire slack in the ligament lying outside of the point of proposed fixation at the pubic spines.*

Traction was then made upon the clamp, and the round ligament pulled out through the newly formed canal far enough to bring the uterus into normal anteversion, at the same time allowing for adequate freedom of motion. This being done, the outer leg of the projecting loop of round ligament was drawn

taking up the remaining leg of the loop. Two similar interrupted sutures secured the corresponding ligaments on the opposite side of the pubes. The pubic skin incisions were closed with a figure-of-eight silkworm gut approximation suture.

An inspection of the effect of this operation as to the relation between the uterus, bladder and posterior surface of the pubic process before closing the abdomen, shows the fundus uteri about an inch

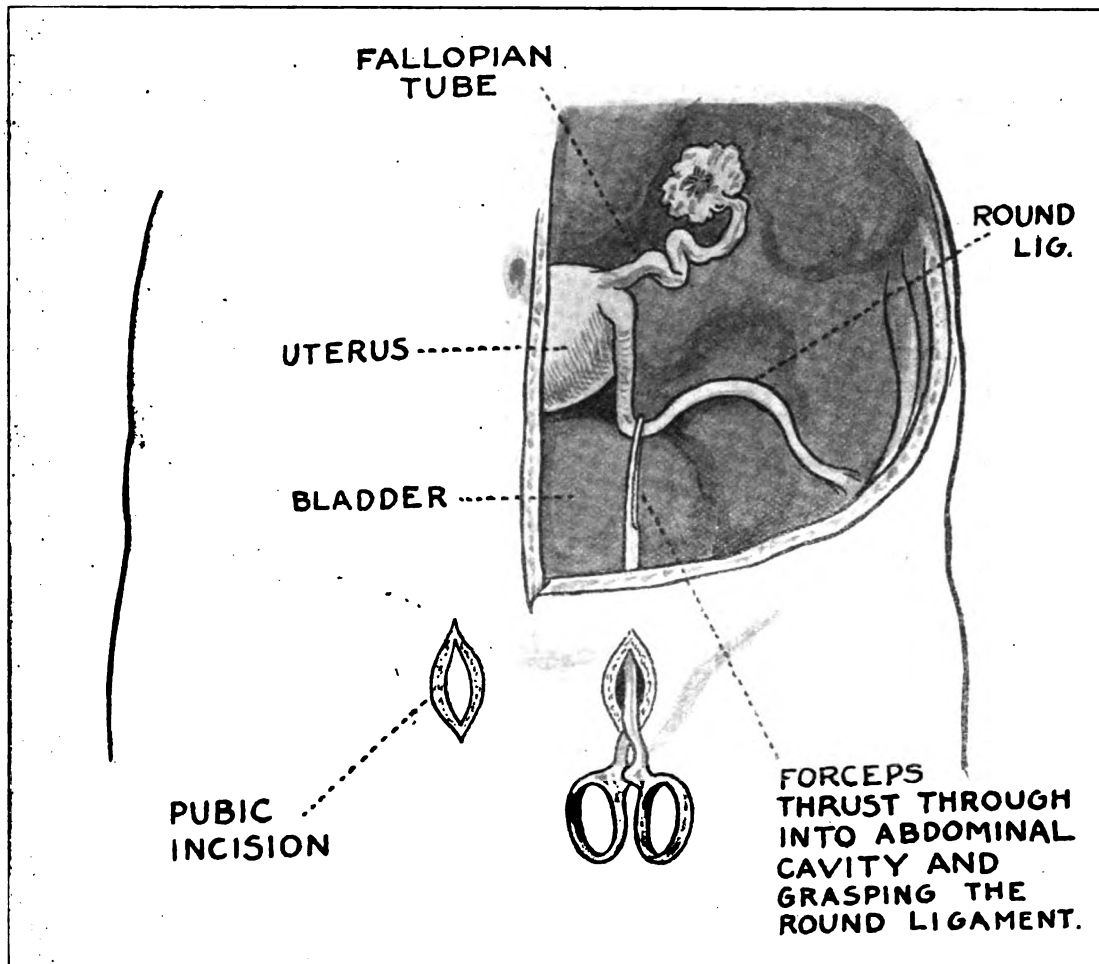


FIG. 4.

upon sufficiently to secure close approximation of its accompanying broad ligament to the inner face of the anterior pelvic wall. The opposite ligament having been similarly secured, the projecting loops of round ligament were sutured with a full curved needle armed with No. 2 catgut as follows: The needle was deeply set into the lower angle of the incision, catching up the deep fascia, then passing upward through one leg of the round ligament loop, then catching up the lower border of Poupart's ligament and out again through the fascia; this suture tied, the maneuver was repeated in the same way,

and a half below the level of the pubic crest; that it is fully an inch and a quarter away from it; freely movable backwards and forwards; and that there is plenty of room to accommodate the varying caliber of the restored urinary bladder. It will also be seen that when the patient shall have assumed the sitting or standing posture the uterus will fall forward, and rest upon the upturned posterior surface of the pubic process, and that the ligaments will then be wholly relaxed, as in normal anteversion, to which latter position, as a result of this technic, it must closely conform.

It will also be observed that this antero-posterior latitude of motion, amounting to fully one and one-

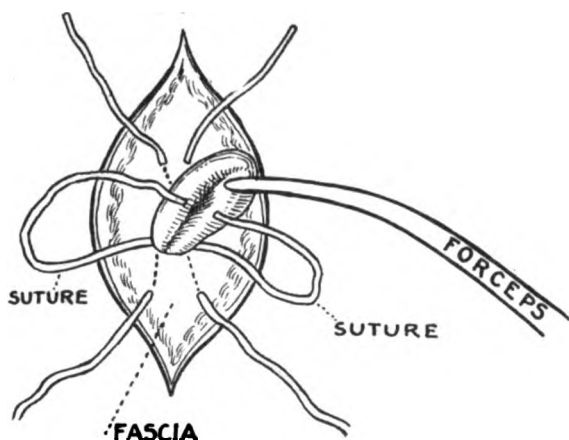


FIG. 5.

half inches, constitutes a very decided advantage over the majority of operations, depending upon some form of attachment to the abdominal wall for support, as in all such cases pressure of the abdominal viscera must put a strain upon fixated or sus-

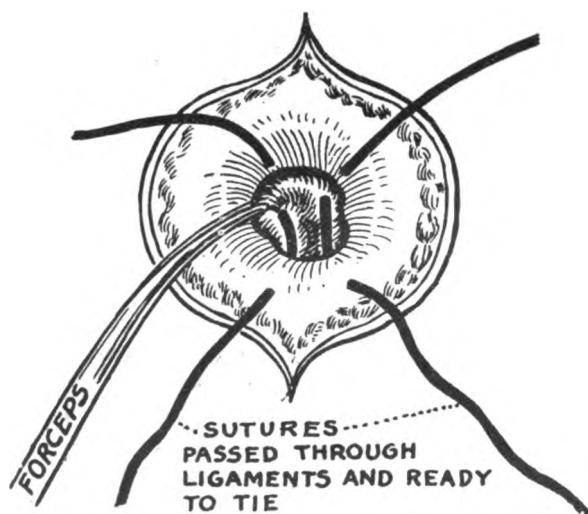


FIG. 6.

pended ligaments, and, in fact, upon any ventral attachment. In the new operation, however, abdominal pressure *relaxes* the round ligaments, as in the normal condition.

In the course of the operation it will be found that the withdrawal of the round ligaments through the designedly narrow canal may present some difficulty, on account of the inelasticity of the powerful structures through which they are made to pass, but these ligaments will be perfectly equal to any strain put upon them, and will serve also to plug the canals against a possible hernia. The operator will furthermore be impressed with the fact that in the grasp

of such a structure the round ligament will not only be safely anchored, but that, best of all, his confidence in the strength of this wall will banish any apprehension of a possible postoperative hernia. The union between the round ligaments and the structures through which they pass is a true sero-fibrous one. Unless in the case of uterine neo-

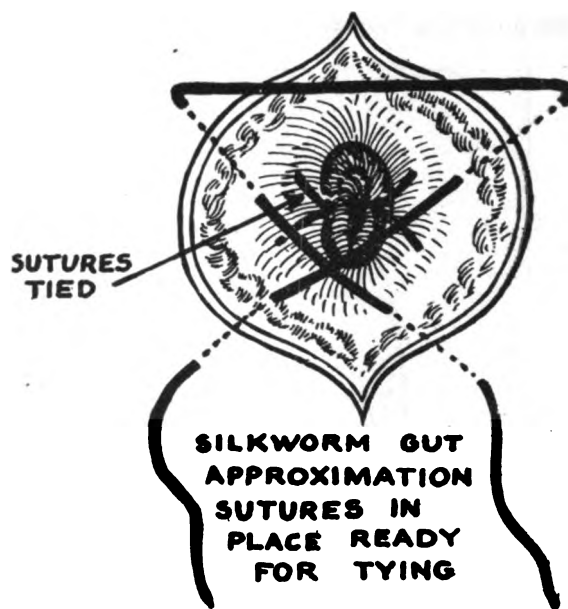


FIG. 7.

plasms, pregnancy, or enormously distended bladder—other things being equal—these fixated round ligaments will not stretch. The strongest part of the ligament is thus looped and sutured to just where, originally, its fibrous filaments, fan-like, spread out to become amalgamated with the pubic periosteum. In drawing the ligament through the new canal, the external slackened portion of the round and accompanying broad ligaments,—lying between the bight of the forceps and the internal abdominal ring,—is wholly taken up, and now clings to the anterior wall of the pelvis, so closely that no hiatus exists for the possible incarceration of a loop of intestine. It is reasonable to conclude that the probability of dystocia, due to this procedure, during any subsequent confinement is also remote, hence the operation will find no contraindication in child bearing women, other things being equal.

In fact, this procedure, from a practical standpoint, more nearly approximates the normal than any of its predecessors, and promises greater permanency, greater freedom from relapses, from dystocia, or any of the postoperative sequelae.

The patient's temperature on the following morning was 98 degrees; pulse 80; bowels well open in

forty eight hours; condition good; and very little pain. She lay upon the side and moved about freely in bed. Vaginal examination, forty-eight hours

were present; she voided urine voluntarily. A slight stitch infection was the only complication in an otherwise uneventful recovery.

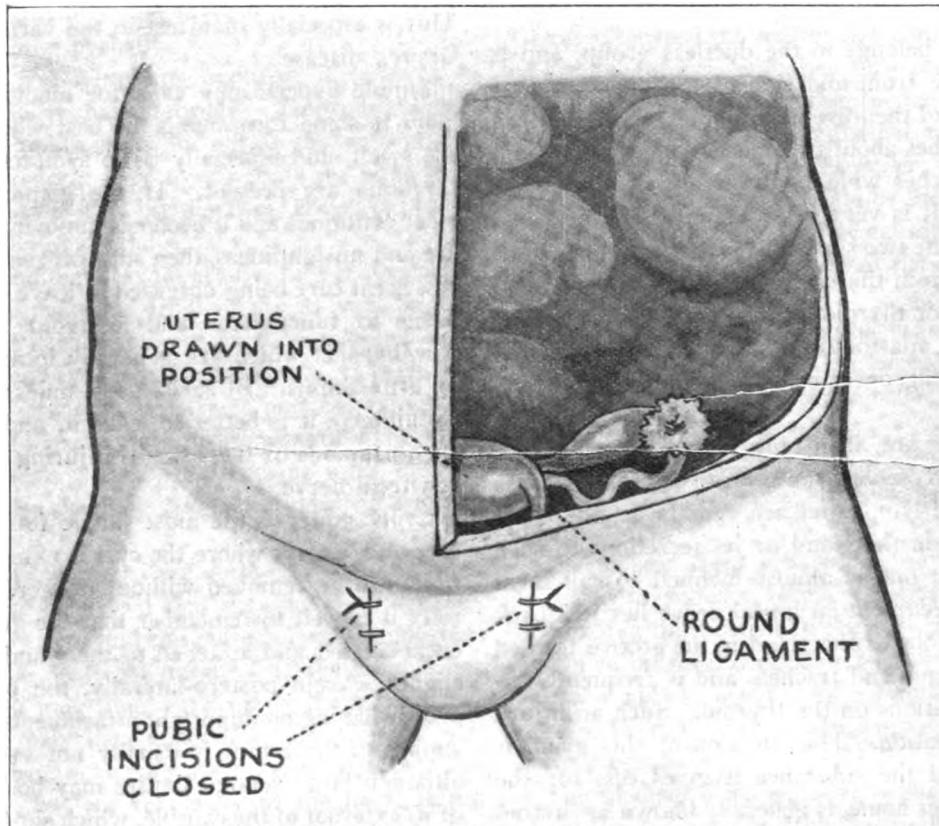


FIG. 8.

after operation, showed the uterus strongly anchored in its new position. No vesical symptoms whatever

Four weeks later an examination reaffirms the findings of December 18th, the uterus being strongly

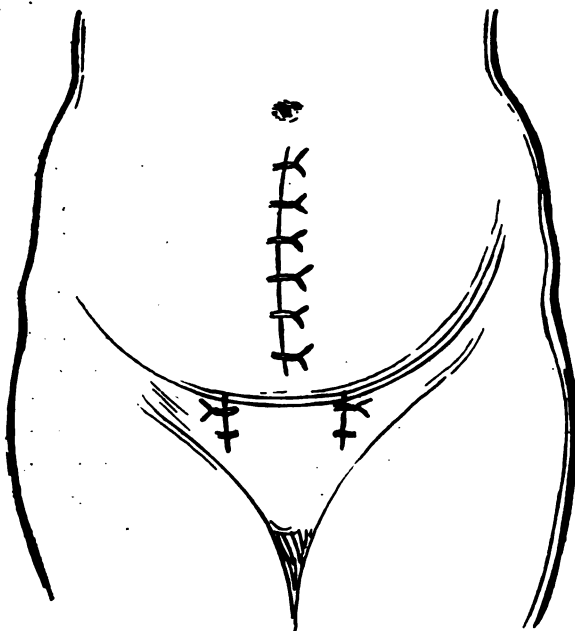


FIG. 9.

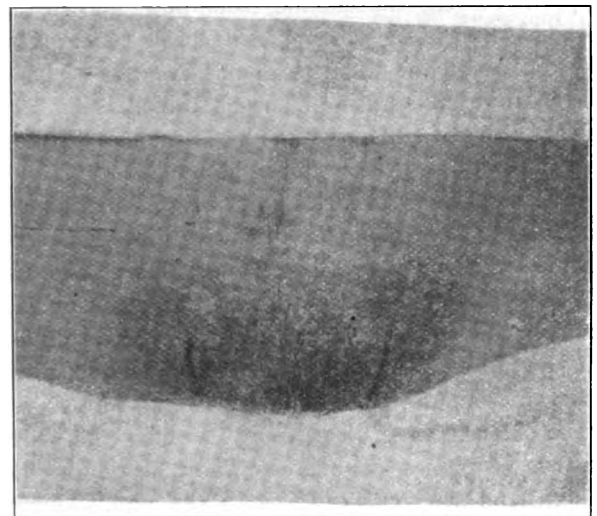


FIG. 10. Sixteen days after operation.

and securely held in normal anteversion by the newly anchored round ligaments.

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## THE THYROID GLAND AND SOME OF ITS DISEASES.

By C. P. THOMAS, M.D., Los Angeles, Cal.

This gland belongs to the ductless group, and is located on the front and side of the upper part of the trachea and the lower part of the larynx. It has two lateral lobes about two inches long and one and one-fourth inches wide, connected by a middle lobe or isthmus. It is very vascular, receiving its blood supply from the two superior thyroid arteries, which come direct from the external carotid arteries, and the two inferior thyroids, which come from the thyroid axis, all anastomosing freely, requiring great care while being operated upon to prevent hemorrhage.

The nerves are from the cervical sympathetic ganglia and accompany the inferior thyroid arteries. The veins and lymphatics are very large, the latter serving to drain the gland of its secretions to such an extent that one is almost inclined to call them ducts. The recurrent laryngeal nerve lies just back of the lateral lobe of the gland in the groove formed by the esophagus and trachea, and is frequently injured in operations on the thyroid. Such an injury destroys phonation. The function of this gland is excretory, and the substance it gives off, for the want of a better name, is generally known as thyroid secretion. It is known to be a most important secretion, since its absence or deficiency, called hypothyroidia, leads almost at once to the condition known as cretinism, while its excessive formation, hyperthyroidia, causes the condition known as Graves' disease of which I will speak later. The thyroid of all the ductless glands appears to have the greatest tendency to undergo pathologic changes; in fact, it is not exempt from any of the morbid conditions found elsewhere in the body.

The most common are cystic, colloid, malignant, and simple hypertrophy. Just why these different changes take place or what the existing causes are is not yet known. Why one gland may be cystic and another colloid is unknown. Simple hypertrophy of the gland should, according to the laws of nature generally, be due to overwork or oversecretion; yet we constantly find hypertrophy without the well-known symptoms of over-secretion, while on the other hand we very often have the unmistakable evidences of hyperthyroidia without hypertrophy. It appears to be well established that simple goiter is more prevalent in mountainous countries, notably in Switzerland and the mountainous portions of the

northwestern part of the United States and Canada. Women are more prone to goiter than men, and it is a noticeable fact that this condition is more prevalent during the active sexual periods of their lives. This is especially manifest in the variety known as Graves' disease.

Simple hypertrophy calls for medical treatment, iodine in some form being the best when the glands are small, and especially if no symptoms of hyperthyroidia are present. If the glandular enlargement continues and it becomes annoying from pressure and unsightliness, then surgical removal is called for, great care being observed to leave enough gland tissue to functionate, and to avoid removing the parathyroids which are generally located just back of the isthmus. In such cases, unless the isthmus is enlarged, it is better to leave it, and by so doing we escape one of the risks of injuring the recurrent laryngeal nerve.

Cystic goiter is the most simple form of the disease and, except where the cyst is extensive or multiple, can be removed without danger. In this variety it is well to remember that the growth is well encapsulated and attached to the gland proper only slightly except postero-laterally, the posterior wall proper having no important attachments. The blood supply to the tumor is usually not very extensive, although large venous sinuses may be seen in front of it, external to the capsule, which should be pushed aside but not cut. The same rule largely applies to the colloid variety, only this is more likely to be multiple and more adherent. I believe that Graves' disease is more liable to accompany the colloid than the cystic form, but it may be present in either. There is a marked tendency to malignancy in an enlargement of the thyroid gland which is a good reason for advising early removal.

Graves' disease was first described about seventy-five years ago by Graves, of England, followed soon by Basedow, Parry and others. The name most generally adopted for the disease is exophthalmic goiter. This, however, is more or less a misnomer, as it means "protruding eye," when as a matter of fact this symptom of the disease is usually very late in developing, if it does at all. According to the now generally accepted theory of its etiology a better name would be hyperthyroidia in contradistinction to hypothyroidia or myxedema, which is often really a third stage of Graves' disease in adults.

The disease is manifested by five chief symptoms, viz.:

1. Tachycardia.
2. Fine, so-called "railroad bridge," tremor, elic-

ited by having the patient hold her hands extended before her.

3. Nervousness, with great apprehension of impending disaster or death.

4. Enlargement of the thyroid.

5. Protruding eyeballs.

I believe the symptoms manifest themselves in about the above named order. Thyroid enlargement and exophthalmos are not at all constant, but when they do occur they appear about the same time. We might add to this list diarrhea, which is usually soon followed by death.

Tremor and tachycardia are the first to appear, in some degree, varying from slight to very severe. Nervousness is the symptom most complained of by the patient and is often very annoying. I have seen patients sit down in the streets and cry because a street car had been missed, or because of some slight disappointment. They often become most despondent, restless, sleepless and suffer loss of appetite and weight.

The heart symptoms are quite constant and most patients have been told that they have cardiac disease. It is rare to find the pulse below 90 and often it will be 120 beats per minute. If the trouble has existed for a long time, particularly if the patient is anemic, we may have distinct bruits or even loud systolic murmurs at the apex after dilatation has taken place, but the regularity of the heart is not much affected. Arterial pulsations, even to the finger tips, are often complained of, while hot flushes and throbbing of the vessels of the face and neck are common symptoms. These symptoms are exaggerated by slight exertion or emotional disturbances. While this does not describe all of the heart symptoms that may be found in Graves' disease it gives those most frequently present.

I am often consulted by women who have been treated for a long time for nervousness and even an operation has been advised, and when told that no operation is necessary, they become most discouraged and actually insist on its being performed.

Before learning to diagnose this condition I operated on two patients suffering from Graves' disease, doing only plastic vaginal work, and both died within three days of tachycardia, with vomiting and diarrhea. It is well known that persons with this disease do not stand surgery at all well, many, in fact, dying from the anesthetic. This is so well recognized that local anesthesia has come into general use in operating for this trouble, Kocher employing it almost exclusively.

It is a disease found most frequently in women,

usually developing between the ages of eighteen and thirty years. It does not appear to be affected by pregnancy or lactation, but it is believed by the writer to have some remote connection with the sexual organs. Nearly every married woman with whom I have discussed the matter has admitted some sort of incompatibility with her husband, and since it almost always appears during the most active sexual life, I strongly suspect a distinct relationship. It seems to be well proven, however, that the symptoms are due to over-secretion of the thyroid gland; many of them, in fact, may be caused by administering fresh thyroid extract—even the protruding eyes have been so produced.

The course of Graves' disease is as follows:

1. Increased thyroid action, probably due to some disturbance of the central nervous system, worry being a predisposing cause.

2. Hypertrophy from overuse of the gland, which may be followed by nervousness, diarrhea, or even death.

3. Atrophy from exhaustion of the gland, followed by myxedema, which is, I think, as Osler aptly puts it, a third cousin to the first conditions.

I have on several occasions suspected the disease and was able to prove it by administering an overdose of thyroid extract, thus bringing out the cardinal symptoms.

The medical treatment which has been most successful in my practice has consisted in the administration of large doses of belladonna, bromides and ergot, keeping the patient under the influence of these drugs for many months, at the same time looking out for the organs of digestion and elimination. Another and most valuable aid to treatment consists in rest from all work and responsibility, not necessarily, however, in bed. Pleasant surroundings should be maintained, and the patients should be often assured of their eventual permanent recovery. I have repeatedly observed them to take on weight and actually recover under this line of treatment.

Surgery of late is offering much hope, several operations having been successfully done, as follows: Removal of part of the thyroid gland, cutting off the blood supply, severing the sympathetic, etc. The rule laid down by some surgeons of experience is to operate after medical treatment has failed according to the following plan: Ligate the two superior thyroid arteries and their veins if the pulse remains above 110, notwithstanding good medical treatment and rest, and do the radical operation if it can be kept below that number and the patient's



condition will otherwise warrant it. The removal of the right lobe, isthmus, and two-thirds of the left lobe is usually sufficient, but later when the gland is very large it may be necessary to remove more of the remaining third. Crile's method of anesthesia has not come into general use. Ether by the drop method preceded by morphin and atropin, giving only sufficient ether to keep the patient quiet, is the one mostly recommended. The time of operation should be short, and there are many minor operative details too lengthy to be gone into now which must be observed, and even then the death rate will be high and not all cases recovering from the operation will be cured.

308 Consolidated Realty Building.

### DIRECTIONS FOR THE USE OF THE DUODENAL BUCKET.

By MAX EINHORN, M.D., New York.

*Professor of Medicine, N. Y. Post Graduate Medical School and Hospital.*

Colleagues have frequently asked me for particular directions for the use of the duodenal bucket.

Later on I made use of the bucket for the thread test for recognizing ulcers of the digestive tract.<sup>2 3 4</sup>

The duodenal bucket is used for the following purposes:

1. To determine the permeability of the pylorus.
2. To obtain the duodenal contents for examination.
3. To localize ulcerations along the path of the thread (viz., esophagus, lesser curvature, pylorus, duodenum).

#### *Method of Use.*

The patient swallows the duodenal bucket in the evening, late after supper, with a glassful of water. The end of the thread is attached to the nightgown in such a manner that a length of 30 to 32 inches from the lips can enter the digestive tract, and the bucket is allowed to travel by itself over night while the patient is asleep. In the morning before breakfast it is slowly and carefully withdrawn by the physician. When the larynx is reached a resistance will be felt. This must not be overcome by forcible pulling, but the patient must be told to swallow and during the act of deglutition the bucket may be easily withdrawn.

Before removing the bucket a knot must be made

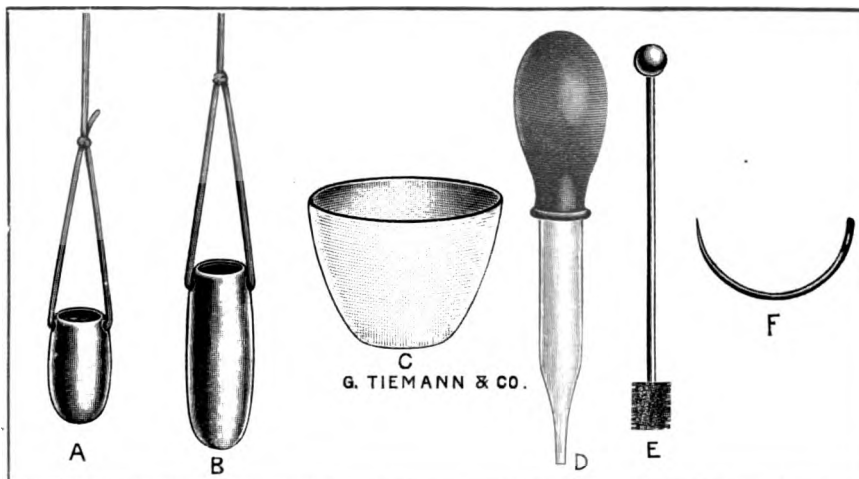


FIG. 1. The duodenal bucket and its accessories. A, small size; B, larger size; C, porcelain dish; D, aspirating pipette; E, brush; F, needle.

Although in previous papers I have already explained the method, I take the liberty of giving herewith full directions with regard to its employment.

The bucket was originally described by me in the *N. Y. Medical Journal*, and the following drawing was also printed at the same time.<sup>1</sup>

at the teeth in order to determine the length of the thread in the digestive tract. It is important that the patient should take no substances at supper that

<sup>1</sup> Max Einhorn: A New Method of Estimating the Permeability of the Pylorus and an Attempt at Testing the Pancreatic Function Directly. *N. Y. Med. Journ.*, June 20, 1908.

<sup>2</sup> Max Einhorn: A New Method of Recognizing Ulcers of the Upper Digestive Tract and of Localizing them. *Med. Record*, April 3, 1909.

<sup>3</sup> Max Einhorn: Further Experiences with the Thread Test for the Recognition of Ulcers of the Upper Digestive Tract. *International Journal of Surgery*, Nov., 1909.

<sup>4</sup> Max Einhorn: The Importance of the Thread Impregnation Test for the Recognition of Ulcers of the Upper Digestive Tract. *Medical Record*, March 18, 1911.

might cause a stain on the white silk thread resembling blood (viz., coffee, jellies, claret, etc.).

After withdrawal of the bucket the thread is immediately and carefully examined for (1) blood spots, (2) bile stains.

The distance of the blood spots from the knot at the teeth will give the localization of the ulcer. If the end, say the lower four to eight inches, are stained a golden yellow, it will show that the bucket had passed the pylorus, provided that the length of the thread in the digestive tract remaining white exceeds 22 inches, and that therefore the pylorus is permeable. (The distance from the teeth to the pylorus is on an average 22 inches.)

If the bucket has been in the duodenum, the contents are usually golden yellow, viscid, and slightly alkaline. Sometimes, however, they may be acid and whitish, especially if the bucket has been only just beyond the pylorus.

The thread test appears to be of importance not only in the recognition of the position of an ulcer, but also as a criterion of the efficacy of our procedures, especially whether a cure has been accomplished or not. In those cases in which perfect healing of the ulcer has taken place the test becomes negative.

In the diagnosis of cancer of the stomach the thread test is of value in aiding us to recognize a suspected neoplasm before it is yet palpable. This is particularly the case in malignant affections of the cardia and the pylorus.

In several cases of neoplasm of the pylorus the bucket did not pass beyond the pylorus and came back filled with a brownish fluid of a fetid odor, the thread being stained brownish for quite a distance from the bucket.

### INJURIES TO THE GENITO-URINARY ORGANS INCIDENTAL TO RAIL- ROADING.\*

By WILLIAM WARREN TOWNSEND, M.D., Rutland,  
Vermont.

*Professor Genito-Urinary Surgery, Medical College of the  
University of Vermont.*

The problem that confronts me in attempting to interest a body of surgeons, gathered for the purpose of discussing matters surgical, associated in the special field of railroading, is a difficult one, inasmuch as in the particular branch of surgery in which I am engaged traumatic injuries to the genito-urinary organs play a rather small and indirect

part in the sum total of my work. The case histories which I have available to draw upon in order to get data for an address are, of necessity, meager. However, there come to mind several cases of injuries seen by me, and in harking back I can appreciate that there were present in these points of interest for study, and I trust that a free discussion and criticism of my remarks will accomplish the purpose intended by your honorable secretary, when he asked me—a near railroad surgeon (if travelling back and forth over the road can be considered one of the requirements)—to be with you to-day.

Injuries to the genito-urinary organs, like those to other parts of the body, result from direct and indirect violence. The external genitalia, penis, scrotum and testicles, are less protected from violence than some other parts of the body, hence may be lacerated and punctured in some instances of excessive trauma, and while the immediate results of such injury are devoid of serious surgical annoyance, there still exists a responsibility on the part of the surgeon in the assumption of such cases as are illustrated.

A young man seen by me, on whom I operated for closure of a fistula, while engaged in the act of coupling cars, was squeezed, but not in such a manner as to fracture the bones of the pelvis. Sufficient trauma, however, was induced so that a severe contusion of the penis, as a whole, occurred, allowing the free escape of blood in the areolar tissue between the skin and fascial covering of the organ and an effusion of blood into the corpora cavernosa. So much deformity resulted for the time being as to mask the deeper contusion, and inflammation of the corpus spongiosum occurred, which was extensive and was followed by pus formation; infiltration ensued until spontaneous rupture of the abscess cavity took place after the individual was discharged as cured. It was for the fistula that he consulted me. This case was improperly treated, inasmuch as the abscess cavity and injury to the corpus spongiosum were overlooked; and I presume that it escaped notice for the reason that the extensive ecchymosis attracted the attendant's attention and he directed treatment to it.

At the present time the man has a penis that when erect describes half a circle, with the curvature downward, and he informs me that sexual intercourse is next to impossible, and when attempted is embarrassing to say the least.

The encroachment on the urethra by the cicatricial tissue and its subsequent contraction have caused a distortion of the canal—practically a stric-

\*Read by invitation at a meeting of the Rutland Railroad Surgeons' Association, held in Burlington, Vt., December 14, 1911.

ture. This condition can be remedied by operative measures, but any attempt at resection of scar tissue in the bodies of the penis is not attended with a good result and is to be condemned.

Injuries occurring to the scrotal sac may be superficial or deep. Lacerations extending through the various coats may allow of the delivery of a testicle or the testicles. However, this occurrence would be of no serious consequence, and the only precaution necessary to be taken would be attention to technic to prevent infection and obtain good coaptation of the parts.

Wounds of the scrotum bleed profusely and extreme care should be exercised in ligating all bleeding points, or a large hematoma with infection may result.

Contusions cause subcutaneous hemorrhage, and even slight trauma as, for example, shaving the parts prior to operation, will oftentimes blacken the area so that one will at once think of gangrene and sloughing; hence scrotal ecchymosis is no indication of marked direct or indirect violence.

Injuries to the testicles are important as the possible claim of sterility following such trauma may be advanced. The testicles are sturdy organs and withstand much abuse, and from their exposed position it would be natural to presume that contusions and wounds would be common. It is not so. Punctured wounds that do not allow of the escape of the parenchyma, the seminiferous tubules, are of no importance. A case is recorded in which the extruded tubules resembled a slough which was removed, and there remained nothing but the testicular capsule, the tunica albuginea.

Severe contusions may be followed by orchitis and by real or apparent atrophy. An apparently atrophied testicle, occasioned by its being squeezed by a mistress in an outburst of jealous rage, was removed by me for a persistent neuralgia. Microscopical examination of its structure and secretion showed mobile spermatozoa and spermatoblasts.

For the last few years, at every opportunity that has presented itself, I have aspirated the epididymis of apparently atrophied testicles. I have not looked up my records to determine the exact number of cases, but in several instances I have been able to demonstrate active spermatozoa. Thus it will be seen that all apparently atrophied testicles may not be incompetent, and the simple procedure of aspiration of the epididymis of the affected gland will determine the competency and perhaps quash any threatened suit for alleged loss of procreative ability.

Fatal shock has occurred as a result of severe contusion of the testicle.

Rupture of the urethra is a common injury, and occurs more frequently in the deep urethra than in the penile portion. Rupture, as a result of railroad injury, is usually associated with trauma to other parts of the body and rarely occurs alone.

In fracture of the bones of the pelvis one should not be satisfied unless he is sure that a catheter passes easily. The symptoms of urethral rupture are hemorrhage appearing at the meatus, pain, tumefaction, and derangement of urination.

Incised and punctured wounds of the urethra are usually associated with injuries to the penis and are treated in the conventional surgical manner. Stricture of the urethra will follow urethral tears, and it is claimed by those who have studied these injuries that longitudinal wounds are less liable to stricture than are circular ones.

A young woman brought to a hospital in which I have a visiting association was injured by being caught by the fender of a trolley car and rolled under it instead of on it, as, in all probability, was the intention of its originator. After recovering from the shock she complained bitterly of suprapubic pain and a desire to urinate which she could not satisfy. Catheterization was done and only a small quantity of bloody urine was drawn, and the bladder was injected with a saline solution with the intention of determining whether it was ruptured or not—a practice that should not be followed, as it is unreliable in results and may do great harm. After satisfying themselves there was no rupture of the bladder, and in going over the case further, a fracture of the ramus of the pubes was made out and the parts properly fixed. She did not do well, however, and within fifty-two hours symptoms of peritonitis developed, and in due course of time she died.

I am familiar with the history of the case, as I was invited to the post-mortem consultation. No necropsy was allowed, and it was through the courtesy extended by the undertaker that we were able to learn the true pathology, which disclosed a small intra-peritoneal rupture of the fundus of the bladder.

The lesson to be learned from this illustrative case is: 1. That a bladder may be ruptured and still hold fluid. 2. If a small quantity of bloody urine be passed or drawn from an individual having a fractured pelvis, exploratory surgical interference is demanded to prevent peritonitis in intra-peri-

toneal rupture and extravasation in extra-peritoneal rupture.

Rupture and wounds of the bladder are usually associated with other injuries produced by the same violence, and occur most frequently when the viscus is distended with urine. Bladder ruptures should always be sought for in injuries to the trunk and pelvic region.

Injuries of the ureters, unassociated, are rare, and will not be discussed, as they are most generally complicated by injuries of the kidneys.

Undoubtedly many kidneys have been made pathologic as a result of railroad injury, and had they been recognized, railroad companies would have been called upon to defend their treasuries more often than they have been. The remote result of external violence to the kidney is greater than is appreciated by the rank and file of the profession. For example, we will assume that an individual has just recovered from a serious debilitating disease, as enteric fever, and after leaving the hospital, on the way home, rides in an ordinary day coach and when approaching his destination stands in the aisle; the engineer, not calculating his speed accurately, sets the brakes, thus forcibly throwing our example, the convalescent typhoid, against the back of a seat with direct violence to his lumbar region. The attachments of the kidney are weakened by his illness, and by the force of the impact it is loosened and becomes from that moment a movable kidney.

Through the renal circulation are surging, at the time, myriads of colon and possibly typhoid bacilli, and in that movable and traumatized kidney they find fertile soil and forthwith infect the organ. (Recitation of experiments by Brewer.)

I grant that perhaps this example is overdrawn, and that our imaginary patient had no business in the aisle until the train had come to a dead stop, but please accept it as illustrative of the fact that slight trauma, under favorable conditions, will lead to a diseased kidney or kidneys.

Kidneys are ruptured by blows received directly over the lumbar region or upon the abdomen. Rupture in the latter way is ascribed to hydraulic pressure; by that it is understood that the force of the blow is spent on the blood in the large vessels and on the urine in the renal pelvis, and it in turn exerts such an intra-renal pressure that rupture occurs. (Recitation of experiments.)

Rupture of the kidneys may be associated with rupture of the overlying layer of the peritoneum, or they may be ruptured behind the peritoneum. Watson, in a study of 603 cases, classifies kidney rupture as complicated and uncomplicated, and further sub-

divides it into partial and complete rupture. Exact statistics as to the frequency of either class and subdivision can be found by reference to modern textbooks treating upon the subject of genito-urinary injuries. Suffice it to say that of the uncomplicated cases,—“those in which the injury is limited to the kidney or its adnexa,”—there were 487 in the 603 cases quoted by Watson, and 116 of the type classified as complicated, such in which there was associated a rupture of the overlying peritoneum or some injury of the organs lying within the peritoneal cavity.

I mention this classification and subdivision, as the success of the treatment to be followed in renal rupture is in direct ratio with the accuracy of diagnosis. An uncomplicated or incomplete rupture of the kidney may be treated expectantly; whereas, a complicated complete rupture, with progressive hemorrhage, must be operated on to save life. The symptoms of rupture of the kidney are pain, hematuria, vomiting, shock, anuria, tumefaction in the right upper quadrant or in the lumbar region, muscular rigidity, and external ecchymosis over the point of violence. In instances of retro-peritoneal rupture, the hemorrhage may follow the retro-peritoneal space and the inguinal canal; the ecchymosis will then be around the scrotum and inguinal region.

In complicated cases where the overlying peritoneum and intra-peritoneal organs are injured there will be in addition the symptoms that arise from injuries to these, and later symptoms of general peritonitis from extravasated urine into the peritoneal cavity. Symptoms of peritonitis are sometimes late in presenting, as in the case of the young lady whose history I cited. If the urine is sterile the peritoneum attempts to take care of it, and even bacteria laden urine is slow to produce peritoneal infection.

The results of kidney injury Watson classifies as immediate and late. Under the heading immediate he gives: “hemorrhage, infarction, extravasation of urine, anuria, disintegration of the kidney, rupture of the pelvis or of the ureter”; and as the late results: “secondary hemorrhage, aneurysm of the renal artery and suppuration within and around the kidney.”

I feel that there will come a time when the late or remote results of lumbar trauma will be advanced as a claim for damages by individuals who were apparently not injured, except only slightly over the loin, at the time of accident, as traumatized kidneys invite infection from the blood stream, from the intestines, and directly from the bladder, if it is injured.

Statistics, collected by Grawitz, show that of 90 cases of traumatized kidney, 22 showed late infection by perinephritis. Thus it will be observed that in minor injuries to the lumbar region, while the symptoms of pain, tumor, etc., may be absent, there will still exist the possibility of future disability, for which your company may be held liable after you have committed yourself by expressing an opinion that the examined person is free from injury.

### **STRICTURE OF THE MALE URETHRA, WITH REPORT OF A CASE.\***

By BENJ. B. CATES, M.D., Knoxville, Tenn.

When speaking of stricture of the male urethra in the abstract, the mind naturally conjures up a picture of urethræ showing different types of alteration from the normal, such as the barely perceptible soft stricture, the beaded urethra, the resilient spindle-shaped urethra, to the narrow, sinuous tract,

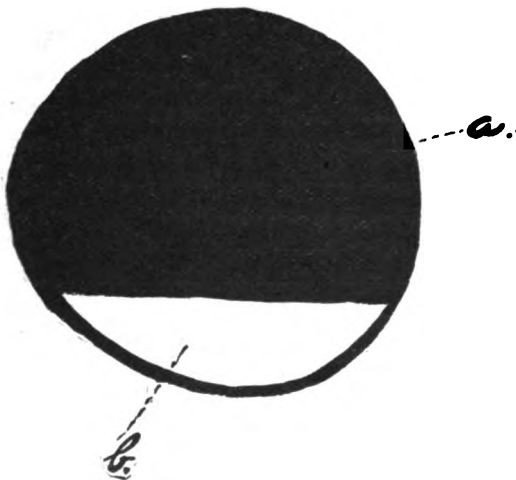


FIG. 1. Transverse section of urethra. a. Diaphragm of scar tissue projecting from roof and side of urethra. b. Slit between lower edge of diaphragm and floor of urethra.

dense and unyielding from the great mass of cicatricial tissue

Such in fact is often the case; but one may sometimes—in the urethra as in other parts of the body—receive a jolt that will cause one to stop and ponder over the condition of affairs.

A case showing a different type of obstruction to any I had seen before came under my notice in the early summer of 1911.

The history of the patient is as follows: C. L., male, white, aged twenty-six, a farmer by occupation, contracted a clap over nine years ago. This lasted four years. Five years ago he noticed his stream of urine diminishing in size, which led him

to seek medical advice. He went the usual round of doctors, and was treated with sounds to no advantage. The patient declared that the different medical men he consulted were never able to enter his bladder with a sound. No doubt he was right, and you will learn why later on.

When I first saw the patient I could introduce a 26 F. sound as far as the membranous urethra, but no further; even filiform bougies were arrested. So after repeated and futile efforts to pass the obstruction—varying from two to three days to a week—I advised perineal section, which was accepted by the patient.

July 6, 1911, assisted by Dr. C. Deaderick, I did an external urethrotomy and found at the junction of the membranous and bulbous portions an apparently double urethra.

This was somewhat of a puzzling condition, and was due to a thin diaphragm of cicatricial tissue projecting from the sides and roof of the urethra nearly to the floor, leaving a narrow slit for the urine to dribble away.

Now, the explanation of the apparent double urethra may be this: In the efforts of the several



FIG. 2. Side view of urethra showing diaphragm of scar tissue forming cul de sac towards the bladder.

doctors at different times to pass sounds, the end of the instrument pushed this thin diaphragm towards the bladder in the same way that a hernia projects the peritoneum before it, in this way creating a cul de sac, or blind pouch, also a potential false passage. And it was into this cul de sac or blind pouch that the ends of the sounds and bougies entered. Hence the difficulty of entering the bladder.

With scissors we trimmed away this diaphragm, and introduced a soft rubber catheter into the bladder for drainage. We then closed the perineum with fine catgut for the deeper sutures and horsehair for the skin.

The patient made a good recovery and now has a good stream. Besides, on October 23rd, the urethra admitted a 28 F.-sound.

\* Read before the Knox County Medical Society, Knoxville, Tenn., Oct. 31, 1911.



## DISEASED TONSILLAR CRYPTS AND THEIR TREATMENT.\*

By JOHN H. JOHNSON, M.D.

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The subject of diseased tonsils being such an extensive one, it will be necessary for me to confine this paper to a consideration of the faucial tonsillar crypts. The faucial tonsils, pharyngeal tonsils (commonly called adenoids), and the lingual tonsils are each a subject in themselves.

The success of diagnosis and treatment, either medical or surgical, is dependent on an accurate knowledge of the anatomy and physiology of the tonsil.

The faucial tonsils form a slightly prominent cushion in the space bounded by the anterior and posterior pillars. The pillars are folds of mucous membrane, the downward prolongation of the free borders of the soft palate, extending down to the tongue. Above the tonsil at the junction of the two pillars is a fossa, the supra-tonsillar, which has sometimes been mistaken for a large crypt, but is not a crypt. This fossa is formed by a fold of mucous membrane (plica triangularis) passing over the tonsil.

The faucial tonsil, in which the crypts are located, is composed of adenoid tissue resembling a half walnut in shape. The normal size and shape cannot be determined because the tonsils vary in different individuals. When normal, they shrink or atrophy after puberty; when diseased, they do not, but increase rather than decrease in size. The free surface of the tonsil is studded over in an irregular manner with a large number of pocket-like cavities, the crypts, which are frequently overlooked; this is important to note. The crypts in the upper portion extend downward and outward and are often covered over by the plica triangularis, those in the middle more horizontally, while the lower ones extend upward and outward.

The arterial supply of the tonsil is derived from the tonsillar, the dorsalis-linguae, the ascending and descending palatine, and the ascending pharyngeal

arteries. The most important of these is the tonsillar, which enters the base of the tonsil at about the junction of its middle and lower thirds. This artery is not well developed until after puberty. The nerve supply of the tonsil is from the trifacial and the glossopharyngeal.

The function of the tonsillar crypts is disputed, and extended research work will be necessary to settle many important questions about their physiology. Whether the tonsils secrete through the crypts, or absorb, physiologists have been unable to determine. The fact that drugs and toxins are absorbed and taken up into the system through these crypts has led me to believe that the tonsils have absorptive powers and also act as defensive organs for both the air and food tracts. One very plausible theory advanced is that the tonsillar crypts serve to entrap a few bacteria and absorb their toxins, so that an immunity may be established before pathogenic bacteria gain access to the system in such numbers as would overpower it. In other words, the crypts serve as a natural means of vaccination.

The etiology of diseased tonsillar crypts cannot be ascribed to any one factor more than another, as the condition results from various causes. The predisposing causes are enlarged crypts, low bodily vitality from any disease, and especially those of infectious nature, as diphtheria, scarlet fever, influenza, tuberculosis, etc. The liability to follicular tonsillitis increases with repetition of the attacks. The exciting causes of acutely diseased follicles is infection with such organisms as the staphylococcus, streptococcus, pneumococcus, bacillus coli communis, bacillus typhosus, fusiform bacilli, spirilla, etc. The germs that are present in chronic diseased crypts are often excited into action by exposure to cold or by exhausting work. New and strange organisms are constantly brought to the tonsils in the food. This spring a remarkable epidemic of virulent tonsillitis occurred in Boston and vicinity, the source of which was undisputedly traced to a model dairy. Cotterill recorded an epidemic of follicular tonsillitis in a boys' school, which he traced to milk from cows with diseased udders. In the healthy human mouth the flora includes more than one hundred different organisms, and it is not strange that the tonsillar crypts are in a constant state of siege and that sometimes the enemy breaks down the barriers.

The subjective symptoms of diseased tonsillar crypts vary in different individuals; there may be none whatever or they may be of pronounced character. There is a sensation of fullness in the throat

\* Read before the Montgomery County Medical Society at Independence, Kansas, November 17, 1911.

in the region of the tonsils, or tenderness. Deglutition may be attended with discomfort or pain. Sometimes the complaint is of an inconvenience or even a pricking sensation in the throat which is especially marked during deglutition. Patients and their friends often notice that the breath is foul in the extreme; they attribute this to a bad stomach when the sole cause is in the tonsillar crypts. A characteristic symptom is the expulsion of yellowish gray, cheesy masses on coughing. These caseous plugs vary much in size and are extremely fetid. Sometimes the only discomfort in cases of diseased tonsillar crypts is a reflex pain in the ears, or the patient complains of the nose being stopped up.

Diseased tonsillar crypts are common in childhood, and the condition is probably not so rare in early infancy as was formerly supposed. In febrile disturbances in infancy and childhood the tonsils should be examined closely and the crypts or follicles should not be overlooked. In adults, diseased follicles constitute undoubtedly the most frequent disease of the tonsil.

Often an attack of acute inflammation of the crypts in children sets in with a chill or convulsion. The temperature ranges from 101 to 105 deg. F. (38.5 to 40.5 deg. C.), with the usual constitutional symptoms. Constipation is frequent, but in babies diarrhea with green stools may quickly follow, thus leading to the diagnosis of gastroenteritis, when the true cause lies in the tonsillar crypts. In adults and adolescents the general symptoms are malaise, chills or chilliness, fever (which may be remittent in character), headache, myalgia, etc., with tenderness of the muscles of the neck; the cervical glands and tonsils show signs of congestion, the tongue is coated and the breath foul.

All acute inflammatory conditions of the crypts or lacunae are described under the name of acute lacunar or croupous tonsillitis (Bosworth), or acute follicular tonsillitis, called by the laity "ulcerated sore throat." This condition is characterized by the filling up of the crypts with inflammatory products. This caseous deposit, the first local sign of follicular tonsillitis, is white, gray, or yellowish white in color. In young children it appears as fine spots which are hardly visible and often escape observation. These "exudative spots project slightly from the surface of the tonsil and represent the visible portion of the inflammatory debris with which the crypts are distended." The pyoid masses derived from the crypts vary in size from a gooseberry seed to a small cherry and even larger. The caseous balls or masses are made up of exfoliated epithelium, particles of food,

large numbers of lymphocytes of all sizes, long segmental fungi, *leptothrix buccalis*, various streptococci, staphylococci, less commonly the pneumococcus, the micrococcus catarrhalis, *bacillus coli communis*, *bacillus of Friedländer*, *bacillus septicæmiæ* sputi, in a few isolated instances the micrococcus tetragerus, and exudative lymph with possibly a little fibrin; the masses varying from semisolid in acute follicular tonsillitis to "cheesy" consistency in chronic cases.

The symptoms of chronic follicular tonsillitis are largely those of the acute form. The most pronounced symptoms of chronic diseased crypts are an almost constant foul breath, the coughing up of fetid cheesy masses, pharyngeal and nasal catarrh, and frequent attacks of sore throat.

The diagnosis depends on finding the plugs in the crypts, or the inflamed crypts which contained them. The crypts may coalesce to form large lacunae. In children follicular tonsillitis is apt to be confused with diphtheria, and the latter should be suspected until disproved by the culture test. The diagnosis may be difficult when the crypts are sac-like with narrow openings, or when their contents have become encysted.

Inflamed and edematous pillars, uvula and soft palate are often the result of diseased tonsillar crypts, which may also serve as a starting point for ulcers. The septic material absorbed through the crypts may cause enlargement and tenderness in the lymphatic glands at the angle of the lower jaw. Peritonsillar abscesses originate from diseased crypts and they are sometimes evacuated through them. Damaged lacunae of the tonsil are one of the most common portals of entry for the invasion of bacteria to be found in the body, and it is no wonder that a host of acute and sometimes very severe inflammations of serous membranes arise in this manner as the result of a cryptogenetic septicopyemia. Pneumonia has been observed following lacunar inflammation in a number of instances (Grünwald). The swallowing of the plugs of fetid matter often results in a condition termed "biliousness," the stomach receiving the blame for a diseased condition of the tonsils. Catarrh of the nose, accessory sinuses and nasopharynx may originate from diseased tonsillar crypts. The catarrhal secretion coming from them is often filthy in the extreme. This infectious matter constantly bathes the oropharynx; naturally the teeth are exposed to infection from this source, thus favoring caries or decay.

One of the most important conditions of tonsillar

disease, which gives the patient and physician great anxiety, is tuberculosis. In tubercular adenitis of the neck it is the tonsil that is almost invariably the first to become affected, the infection traveling from the crypts to the cervical and the bronchial glands. Several investigators have found tubercle bacilli in the crypts of the tonsils. The tuberculous process develops mainly in the cavity of the crypts; the ulceration does not as a rule come to the surface at all. The bacilli are sometimes present in large quantities (Kafeman). "The tonsillar tissue of the throat, because of its peculiar anatomic construction and its topographical relations, is more liable to become infected by tuberculosis than any other part of the upper respiratory tract" (Wood). Tubercular infection through the tonsillar crypts gains access to the lymphatics, then to the blood stream, sometimes becoming scattered and producing miliary tuberculosis. It is the opinion of quite a number of laryngologists that in tuberculosis of the apex of the lung the infection gains access through the tonsil.

There are a number of cases on record of tuberculosis of the tonsils prior to the involvement of the lungs, or the lungs may be involved first and the tonsillar tissue become infected later. Patients having no tubercular lesions but diseased tonsillar crypts may, as the result of irritating emanations, suffer from congestion and obstruction of the nose interfering with free respiration, and through undue mouth breathing, expose themselves to tubercular infection by inhaling tubercle-laden dust. It is the diseased tonsillar crypts that predispose patients to tuberculosis. Thus in a case of fissured or partially destroyed tubercular tonsil the general symptoms of incipient tuberculosis may disappear after thorough removal of all the crypts, with speedy restoration of the individual's health.

If diseased crypts are left in the throat recurrence of inflammation will always follow. Sometimes the retained cheesy secretion in the crypts undergoes a calcareous degeneration, producing what is known as a calculus or tonsillolith, but more frequently the retention of the secretion brings on tonsillar and peritonsillar abscesses, or it leads to a chronic inflammation of adjacent pharyngeal structures, and often evidences its systemic effect by the development of rheumatic symptoms (Griffin). There are a number of pathological conditions whose etiology is not well understood in which, according to some authors, the diseased tonsillar crypts are the points of entrance of infection in certain cases; later this is transmitted to remote regions of the body causing foci of infection, such as

rheumatic arthritis, otitis, pericarditis, endocarditis, pulmonary tuberculosis, meningitis, nephritis, appendicitis, etc. .

The remark is often made that the faucial tonsils must not be removed because it would ruin the voice, but those who hold this view would waive their objections if they knew how their palate is held down with adhesions of the pillars to the tonsils containing the diseased crypts, which prevents a free play of the palate and uvula in vocalization and thus renders difficult the tuning of the oral cavity to the pitch of the vocal cords, giving the voice a peculiar quality. The variation in size of the palato-nasal opening and the tremor of the soft palate are best obtained when the parts are free and mobile, but the inflammatory process starting in the tonsillar crypts in a large number of cases extends into the surrounding tissue, causing the pillars to become bound down to the diseased tonsils. The voice in some persons with diseased tonsils becomes very thick; the patient speaks with difficulty and is difficult to understand. On account of the obstruction to free nasal breathing, as the result of irritating gases emanating from the fetid matter in the diseased crypts, it is impossible for him to make clear nasal sounds. It becomes very necessary, especially in singers and speakers, that the affected crypts should be removed and the pillars freed from their unnatural attachments in order that they may control their voice.

#### *Treatment.*

The treatment of diseased tonsillar crypts consists of both medical and surgical measures. Some of the most important conditions demanding medical treatment are diphtheria, scarlet fever, erysipelas, syphilis (chancre, mucous patches), etc. In any of these the tonsils may be involved, and the treatment is both local and systemic, and is thoroughly discussed in any textbook on the practice of medicine. The plugs can be wiped off with a swab or can be squeezed out. Some patients learn themselves how to press out the fetid masses. Others pick them out with the curved end of a hairpin. Sometimes it is necessary for the physician to remove them with a small curette or scoop. Gargles, sprays, and applications to the distended crypts are only palliative measures. They are easily carried out, but such methods only serve as a broad and devious path that leads to disappointment both to the patient and physician. It is treating the symptoms and not the cause.

By far the greater number of pathological conditions of the tonsillar crypts call for radical opera-

tion; therefore, the surgical treatment is exceedingly important and must be carried out by the specialist. It is a fact that the importance of operations on the tonsils has been greatly underestimated by both physicians and the public. Some physicians will clip off the point of the enlarged tonsil with a tonsillotome, with the result that the public gains the impression that a tonsillotomy is a simple but ineffective operation. This impression is enhanced by the practice of the unskilled, which in a majority of cases of amputated tonsils is followed by a "recurrence," or as the laity puts it, "the tonsils grow in again." Indications for the removal of the tonsils are hypertrophy, tonsilloliths, tuberculosis, chronic adenitis of the neck with involvement of the tonsillar crypts, chronic follicular tonsillitis, recurring tonsillar and peritonsillar abscesses. The diseased crypts are first seen generally by the family physician, who notes that his patient is absorbing septic material and thinking surgical treatment necessary, sends the case to a laryngologist. The latter should make himself familiar with all the conditions in the throat, and should have a clear idea of the case before he proceeds with the removal of tonsils, adenoids, or lingual tonsils. If he fails to use a general anesthetic or if he ineffectually applies a local anesthetic, he will at the removal of the first tonsil throw the child into a panic, and will only with extreme difficulty, if at all, be able to remove the second tonsil. The child's mother duly informs the neighbors, and the child, its playmates, how cruel the doctor was, and thus a prejudice arises against the removal of tonsils for any reason, and at the same time the general prejudice against any kind of operative procedure is increased.

A child should never be operated on forcibly while struggling and screaming; it leads to bad work and has a serious effect on the patient's nervous system. It is advisable to use general anesthesia in young children, but in older ones and adults, if their temperament is favorable, a local anesthetic is preferable; though at times we find that it is easier to operate under local anesthesia on children from four to six years old than on those from eight to ten years of age. The former are innocent and unsuspecting, while the latter are looking for something and suspicious.

The tonsil containing diseased crypts that is most difficult to remove is that variety which is buried deeply in the supratonsillar fossa. The anatomic condition in the upper part of the tonsil is such that a large portion is embedded, so that when an operation is performed by an inexperienced surgeon the

lower part is removed thoroughly, but the upper one that is most important and most difficult to eradicate is left, which will afterwards cause all kinds of trouble peculiar to diseased crypts.

In tonsillar surgery it is first necessary to cleanse the field of operation as thoroughly as possible. Every operator will of course have his favorite anesthetic and method. If my patient is a young child or a nervous individual, I employ a general anesthetic, but whenever possible local anesthesia is preferable. There are several good local anesthetics, namely, cocain 1 to 4 per cent. used with a swab or injected, or both, or application of cocain in conjunction with the injection of quinin and urea hydrochlorate, or alypin in any strength applied with a swab. Todd, when using a local anesthetic, recommends a 1 per cent. solution of cocain, swabbing it into the crypts after he has cleansed them out. He employs adrenalin solution to prevent the general toxic effect of cocain. When cocain is used even in a 10 per cent. solution, I find that certain parts of the operation are apt to be painful, the absorption of the drug having been retarded by the inflammation of the parts, and I have therefore adopted alypin as a local anesthetic, as it can be employed in any strength with perfect safety, and according to my experience is more effective than cocain. Adrenalin combined with cocain injection gives better results than does cocain alone. The injection of quinin and urea hydrochlorate after application of alypin or cocain solution I have found to be a satisfactory local anesthetic.

Many technics have been presented to the profession within the last few years. A large number of instruments have been devised for the purpose, including tonsillotomes, cauteries, scissors, knives, snares, various punches, etc.

About the only excuse for the employment of a tonsillotome is in the case of very young children where the tonsils are so large as to interfere with breathing and swallowing, and even then it is not very satisfactory.

The galvanocautery is very effective for the removal of diseased tonsils, and at the same time you are not bothered with hemorrhage from it, but the ultimate results are not good because of the extensive formation of scar tissue, and frequently after the operation the patient suffers severe pain for two or three weeks.

Some tonsils, after being freed from the pillars, can be readily removed in mass with the finger covered with gauze, but if there is an abrasion on the finger there is danger of infecting it, even if covered

with gauze, the latter being no protection from infectious material, and if syphilis be present, it might give rise to a chancre on the finger. Various forms of forceps have been devised to grasp the tonsils, but many of them are of no value because the jaws of the instrument tear the tissues or do not hold the tonsil when dissecting it out with the scissors.

Tonsillectomy can be performed by a careful dissection with the various tonsil knives, but this operation has its objections, namely, that it is tedious, that it requires a good subject, and that bleeding is very troublesome and is liable to be severe, thus rendering a complete removal of the tonsillar tissue difficult. This method is sometimes combined with tonsillotomies, making the latter more effective. When using the snare the tonsil must be loosened from its attachment except at its base; then through the loop of the snare the tonsil is grasped firmly with tonsillar forceps, pulling it into the loop, which is drawn taut; the cutting is now accomplished by slowly drawing on the snare and tightening the loop; this crushes the vessels and makes bleeding less to be feared.

Gradle's hot snare is often used for hard fibrous tonsils in which hemorrhage is feared. The wire is tightened while cold and heated to a bright red glow, and only when resistance is encountered to its further constriction do we continue the heating; no bleeding whatsoever occurs.

The tonsil punch can be used to advantage when the tonsil is hidden behind the anterior pillars, or when it is necessary to extirpate the base after the main part has been removed. This instrument excises each time a small piece of the diseased tonsil, and by this procedure the entire base can be removed, leaving clean the space between the anterior and posterior pillars.

Tonsils containing diseased crypts are frequently hidden behind the adherent pillars. In this case it is necessary to dissect the pillars free by means of suitable scalpels and tonsil knives before using the punch. Careless operators in tonsils of this type may cut the pillars and have created the popular notion that the radical operation on the tonsils interferes with the voice (Moffit). If tonsils filled with diseased crypts are removed by a skilled operator it improves the voice. The freeing of the pillars gives unrestricted and full motion of the soft palate with its dependent uvula, which thus permits a larger column of air to enter the postnasal space in vocalization, intensifying the power of the higher register, thus softening and beautifying the head tones.

The most essential part in the removal of tonsillar crypts, from the patient's standpoint, is "Will it pain much?" or "Will it bleed much?" These are questions that you will be expected to answer; the former we have discussed, the latter we will briefly consider. Hemorrhage from the tonsil is either arterial or a capillary oozing from the entire cut surface, or both. Capillary hemorrhage can be treated with styptics, tannic acid, or hydrogen peroxide; the stronger remedies such as chromic acid, preparations of iron, nitrate of silver, phenol, or beech wood creosote are used only in extreme cases, and then when the galvanocautery is not at hand.

The tonsillar artery is a branch of the ascending palatine, entering the tonsil through its capsule at about the junction of the lower and upper two-thirds. When these arteries are severed close to the capsule, the latter holds the vessels open and prevents the clot from forming in them, allowing the blood to flow until checked by artificial means. Hemorrhage may occur from cutting the anterior pillars, which is at times an exceedingly troublesome complication. The bleeding which occurs at the time of tonsillar operations is due to an injury to the ascending palatine or its branch, the tonsillar artery. Hemorrhage may also result from injury to the branches of the lingual and superior palatine arteries.

Some recommend that adrenalin should be used in every case of operation on the tonsillar crypts to prevent bleeding, but they seem to have forgotten that there is more danger from postoperative hemorrhage than from that which occurs during the operation. Dr. Waugh, of London, uses chloroform and induces deep anesthesia; his claim is that the reflexes are thereby abolished and no hemorrhage results. When operating on a tonsil I employ an electric head lamp, and if the vessels bleed, use a pledget of cotton or gauze dipped in tannic acid, making firm pressure on the tonsil; if I do not succeed readily with this procedure, I pinch the bleeding vessel or pick it up and ligate. In experienced hands hemorrhage after tonsillar operations is not to be feared.

"The successful treatment of diseased tonsillar crypts means the entire removal of the tonsillar tissue. This necessitates the leaving of a large wound between the pillars." This makes it of primary importance that the throat should receive careful after-treatment. First it should be kept clean as possible by means of sprays, gargles, and mouth washes during the healing process. The patient should be directed to gargle his throat frequently with a good



mouth wash as an alkaline solution, or weak permanganate solution; or 2 per cent. solution of Merck's sodium bicarbonate made up with 25 per cent. solution of a vegetable antiseptic preparation.

In spite of thorough asepsis at the time of operation and cleansing after-treatment, the wound may become coated over with a layer of white necrotic tissue. Sometimes there is a little soreness following the operation. It is surprising how little pain does follow in some instances, when we consider that it is impossible to sterilize the buccal cavity and the throat. The degree of soreness following a radical removal of the tonsillar crypts seems to be in part dependent on the idiosyncrasy or physical condition of the patient. If the patient has had frequent attacks of acutely inflamed crypts, there is more liability of considerable soreness after the operation. Postoperative infection is probably the most frequent cause of this. Infection at the time of the operation may also occur if cutting instruments are employed, though in this age of aseptic surgery this cause may be considered as of infrequent occurrence.

The ideal result to be attained is to have the mucous membrane covering the tonsillar fossa smooth as the roof of the mouth, with no visible depressions or remaining crypts and the pillars free. In order to accomplish this it is necessary to give the tonsillar fossa a daily gentle massage. The massage is best made by means of a pledget of moist sterile cotton on an applicator. Occasionally new tissue formation is so abundant when after-treatment has not been carried out that it is necessary on the tenth or twelfth day to use a Pyncheon tonsil wound rasp to rub off the excess granulations.

In conclusion I wish to emphasize the following points:

1. The importance of the supra-tonsillar fossa.
2. That the direction of the crypts in the upper third of the tonsil is downward and outward.
3. The importance of the tonsillar artery.
4. That diseased tonsillar crypts produce a foul breath.
5. That diseased tonsillar crypts may be the source of nasal catarrh.
6. That diseased tonsillar crypts may be the cause of dental caries.
7. That diseased tonsillar crypts are injurious to the voice.
7. That tonsillar crypts may be the site of tuberculosis.
9. The value of surgical treatment in this condition.

## BIBLIOGRAPHY.

- Bosworth—Diseases of the Nose and Throat.  
Barnett, Ingals, Newcomb—Diseases of the Eye, Nose and Throat.  
Cotton—Diseases of Infancy and Childhood.  
Griffin—Complete Removal of the Fauical Tonsils.  
Holt—Diseases of Infancy and Childhood.  
Johnson—Diseases of the Fauical Tonsil and Its Treatment.  
Moure—Diseases of the Pharynx and Larynx.  
Orndoff—Journal of Indiana State Medical Association, March, 1908.  
Posey and Wright—Diseases of the Eye, Nose, Throat and Ear.  
Pyncheon—The After-Treatment of Tonsillar Wounds.  
Shurly—Diseases of the Nose and Throat.  
Simmon—Clinical Diagnosis.  
Winslow—Boston Transcript, October 31, 1911.  
Woodruff—Prevention of Tuberculosis in Children. In Journal of Out-Door Life.

## THE TREATMENT OF FRACTURES OF THE FEMUR BY THE GENERAL PRACTITIONER.\*

By JOHN A. LEE, M. D., Brooklyn, N. Y.

*Associate Surgeon, St. Mary's Hospital.*

The treatment of fracture of the femur depends on the location, character and extent of the injury to the bone; upon the age, physical and financial condition of the individual. John B. Deaver says. "He who diagnoses well, treats well." So it is especially the case in the treatment of fractured femur. First, endeavor to find out what you have, and in the great majority of cases the accustomed line of treatment will suffice. This treatment will not be accepted by all my surgical friends here, but I am standing on it. The ability to see straight along only a few well-known lines will help us greatly in carrying our cases to a successful conclusion.

Fractures may be classified for discussion into:

1. Fractures of the femoral neck; impacted and unimpacted; intra- and extra-capsular.
2. Fractures of the shaft.
3. Fractures above the condyles.

All fractures produced by indirect violence are oblique and may be twisting. Fractures caused by direct violence may be transverse or comminuted. All may be compound, but it is unusual to see a fracture compound except of the shaft.

The above classes are the types of fractures we see in practice and in hospital work, and the limits of this paper preclude a discussion of the unusual kinds.

I will speak of but two aids to diagnosis which should be employed in all available cases—the x-ray and anesthesia.

It is difficult in ordinary cases outside of the hospital to employ the x-ray, but the aid of anesthesia is too seldom invoked in private practice.

\*Read before the Brooklyn Medical Society, November 17th, 1911.

The other methods of diagnosis I will not dwell upon, but I wish to emphasize the value of anesthesia.

Fractures of the neck of the femur are peculiar to the aged. Given a case of injury to the hip in an individual between sixty to eighty years of age, treat it as a fracture unless you know otherwise.

Fractures of the femoral neck in children and young adults are not unusual.

How shall we treat these fractures in the very aged? Let them alone.

You all know the dangers to life in such injuries. Pneumonia following a fracture of the neck of the femur is one of the commonest causes of death in the aged. We have several every year at the hospital.

Set them up in a hard bed with a sand bag to prevent eversion. If they have an impacted intra-capsular fracture they may get well with a useful limb. The unimpacted fracture should be treated with the simple Buck's splint when possible. Do not break up the impaction in any case of fracture of the femoral neck. An absolutely helpless limb results when portions of the ligament are interposed between fragments of bone, just as we see in fractures of the patella. The only treatment for this is open operation.

The treatment of fractures of the neck of the femur in the more robust consists in well-made Buck's extension with or without suitable side splints. The success of such treatment with Buck's extension depends on attention to details, and it is the neglect of this that makes failures. The patient should be placed flat on a fracture bed, or any hard single high bed, with several boards or a small door between the single hard mattress and springs.

Do not attempt to treat a fracture of the neck or of any other part of the femur on a soft low double bed.

The foot of the bed should be elevated from six to ten inches for counter-extension—a detail often neglected. The plaster, preferably rubber plaster on heavy moleskin, should be fitted with buckles to be joined to the straps on the spreader, which should be two inches wider than the foot to free the ankles from pressure. A rope passing from the middle of the spreader should pass through a pulley, to which should be attached a weight sufficient to correct the shortening. This may be from fifteen to twenty-five pounds. One or more sandbags may be employed to prevent eversion of the foot.

This complete apparatus must not only be used according to directions, but every detail must be

scrupulously examined daily for the first two weeks. The patient is constantly slipping down in the bed, the weights become displaced, the pull becomes uneven, or the bandage or plaster slips. Any or all of these will tend to influence unhappily the result.

After three weeks, and if the shortening is less than one-half inch, a cast embracing leg, hip and pelvis may be employed, or the extension may be continued for several weeks. The extension apparatus or cast may then be removed, and the patient allowed to move his leg around the bed for a week or two, when he may be allowed to move about on crutches, gradually putting more and more of his weight on the injured limb.

This routine treatment of fracture of the neck of the femur should be also employed in fractures of the shaft, with some variations. In some transverse fractures, under anesthesia and prolonged and powerful traction, the broken ends of the bone can be coapted, and anterior and posterior splints with extension immediately applied. Lateral splints sometimes aid in holding the broken ends of the bone together.

In the case of fractures above the condyles, extension may be used, or the double inclined plane. In case we decide to employ extension, a sand bag or pad must be placed beneath the lower fragment to prevent it dropping behind the upper.

As regards prognosis, in 1891, Stephen Smith, as Chairman of the Committee on Fractures of the American Surgical Association, defined a satisfactory result to be present when the shortening did not exceed one-half to one inch, and I do not think we can expect to hope for a better outcome to-day.

The treatment I have outlined will, if carefully followed, approximate to the above results in the large majority of cases that present themselves in hospitals and private practice. In a certain number of these the results will be bad, and in others we shall have absolute failure due to the character of the fracture, or to the inefficiency of the treatment.

The subject of this paper is the treatment of fractures of the femur by the general practitioner, and this is the only method that can be hopefully employed by him.

If the fracture is of the unusual type, difficult to diagnose, reduce, or keep in position, if you are not getting union in two weeks, the case belongs to the surgeon. He may employ many other more modern and radical measures, which in the hands of any but the experienced and skilful will result in failure and perhaps disaster.

23 Revere Place.

PUBLISHED  
BY THE

## International Journal of Surgery Co.

FRANK C. LEWIS, M.D., Managing Editor.

100 William St.—Woodbridge Building.  
New York, N. Y., U. S. A.

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NEW YORK, JANUARY, 1912

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## NEW PRINCIPLES IN CANCER THERAPY.

Within the last few weeks the daily press has heralded the discovery of another cure of cancer by a famous German scientist. Unfortunately newspaper writers, as a rule, are so grossly ignorant of medical knowledge, so prone to let their imagination run amuck, so anxious to create a sensation, that truth becomes a matter of secondary consideration. Consequently it is not surprising that this alleged discovery assumes an entirely different aspect when the facts are understood and correctly interpreted.

Briefly, they are as follows: Professor von Wassermann, well known in connection with the test which bears his name, has sought to extend the scope of chemo-therapy—the method originated by Ehrlich and so successfully utilized in syphilis—to the treatment of malignant tumors. Ehrlich's monumental researches have shown that it is possible by the injection of certain chemicals into the body to exert a destructive action upon various pathogenic microorganisms, without injuriously affecting the tissues, as exemplified by the selective specific influence of arsenical compounds upon the spirochetes,

plasmodium, trypanosoma, etc. The idea therefore occurred to Wassermann—and quite logically—that chemical preparations might exist which in a similar manner would act specifically upon cancer cells without damage to the healthy structures. Naturally such investigation must be made on animals, and for this purpose he selected mice affected with the so-called "mouse tumors," which resemble carcinoma in the human being, although there is still strong doubt as to their identity.

As the result of a long series of ingenious experiments made by Wassermann and his assistants and reported in detail in the *Deutsche medizinische Wochenschrift*, December 21, 1911, it was found that tellurium and selenium possessed a special affinity for the cells of mouse tumors. The injection of soluble salts of these elements directly into the growth, however, proved impracticable because owing to their low diffusive power their destructive action is circumscribed, the more so as such tumors are but poorly vascularized. It was therefore necessary to discover some compound of tellurium or selenium which when introduced into the circulation would be sufficiently diffusible to be carried to all parts of the cancerous growth. A combination with eosin, a dyestuff of the fluorescein group, was found to possess this requirement, this substance being rapidly disseminated and serving as a carrier for the active agent.

The preparation finally evolved is a combination of eosin and selenium, which, like Ehrlich's salvarsan, requires the most delicate chemical manipulation to manifest its activity. Its effect, which occurs after the third intravenous injection and more markedly after the fourth, consists in a liquefaction of the cancerous mass, which rapidly undergoes absorption, so that after the sixth administration only an empty sac remains and in ten days all traces of the tumor have vanished. No recurrences were observed. This is certainly a marvelous exhibition of curative power in a remedy, but it was found to have its limitations, for when employed in mice having very large tumors, the animals died probably from a toxemia induced by the massive absorption of the liquefied material.

However interesting these observations—and they are intensely so—it would be folly to attach undue significance to them. Conditions are somewhat different in mice and men, and until the subject has been further investigated and experiments instituted on human beings it would be presumptuous to even hazard an opinion. Wassermann with commendable modesty and caution only refers to

the possibilities of this line of research, of which this is the first step.

From what has been said it will be seen how little ground there is for the startling announcements in the lay press of a cure for cancer. It is pitiful and pathetic that its wretched victims should have their hopes falsely aroused by these ignorant and conscienceless newsmongers. No doubt the quack and charlatan will reap a rich harvest, for human flesh shrinks from the knife, the only remedy that medical science has yet to offer to the vast majority of sufferers from malignant disease.

### A NOTE ON THE ETIOLOGY OF BACKACHE.

A gynecologist of our acquaintance was wont to define woman as "a constipated thing with a pain." Ungallant and uncharitable as this remark may seem, there is more than a modicum of truth in it, for women are notoriously forgetful in the matter of regularity of the bowels and suffer a great deal of discomfort from this source with remarkable equanimity.

Backache is one of the most common complaints for which the physician is consulted, and one not to be lightly dismissed without a careful investigation of the history of the case, supplemented, if there be the least doubt of its origin, by a thorough physical examination. To some extent, however, if of slight character, it may be a normal condition, so to speak, preceding regularly the menses in otherwise perfectly healthy women. As Theilhaber (*Deut. med. Wochenschrift*) points out, such pain may persist in a more intense degree during pregnancy in women subject to it, being especially manifest after strong exertion. In general, however, backache is to be considered indicative of something pathological, whether it be systemic or local. Thus, for instance, after a careful search, nothing else may be found to account for it than a general neurotic tendency, while frequently it is due to what, for want of a better name, is still termed "rheumatism." Theilhaber mentions unsatisfied sexual desire or excesses in venery as etiological factors. Constipation, with or without hemorrhoids, is certainly a frequent cause.

Among the organic affections of the female genitals cancer is most commonly accompanied by backache, although it occurs quite often in other forms of tumor. Theilhaber thinks that of myomata the submucous variety is most apt to be attended with

it. In cases of ovarian cyst, pain in the lower part of the back is particularly marked where there has been twisting of the pedicle. It is often difficult to determine whether the pain is due to the presence of disease of the uterus or ovaries or to complicating pelvic peritonitis. Women suffering from uterine displacements, particularly retroflexion, do not, according to this author's observations, generally experience backache, unless the uterus becomes incarcerated, and this applies as well to uterine prolapse.

### BLUE LIGHT AS AN ANESTHETIC.

More than thirty years ago there prevailed what was afterwards termed the blue glass craze. All sorts of ailments were thought to be amenable to the action of blue light, and the newspapers were filled with glowing accounts of cures. Enthusiasm ran riot for a time, and then the matter dropped out of sight. Quite some time later there was a revival of interest in phototherapy when Finsen demonstrated the curative properties of the ultra-violet ray in various affections, especially lupus. Since then the physiological action of light has been carefully investigated, and although much remains to be learned, there can be no doubt that we are nearer to an appreciation of its possibilities in the treatment of disease.

One of the most remarkable actions of light has recently come to our attention. In an address before the Boston Physio-Therapeutic Society Dr. E. C. Titus demonstrated that blue light possessed remarkable anesthetic power. In his experiments he used a series of slender glass rods about one-eighth of an inch in thickness, placed side by side and tied together so as to form a kind of flexible mat which will adapt itself to various parts of the body. The glass must be of cobalt blue and transmit no red rays, this being a very important point. The rods are to be placed upon the area to be anesthetized, and some form of white light, preferable a tungsten lamp, brought as closely as possible without causing discomfort. Strange to relate, in twenty minutes the part becomes insensitive, so that superficial and even deep incisions or punctures are no longer felt. This anesthesia lasts for one-half hour or more, and has occurred so constantly that there is no reason to believe that it is the result of suggestion or accident. Minor surgical operations have been performed under this method and without the least pain or discomfort, and there seems to be enough in it to merit attention.

## GYNECOLOGICAL HINTS.

By RALPH WALDO, M.D., New York.

Cysts of the corpus luteum usually remain small in size and so very little general attention has been paid to them. They are of quite frequent occurrence and many times give rise to marked pain. When found they should be removed and the wound in the ovary closed with fine catgut. Many times this condition has been mistaken for appendicitis.

In eclampsia when the cervix is rigid and it is found impossible to empty the uterus without severely lacerating it, vaginal Cesarean section is indicated. The wound in the cervix and uterus is best closed with chromicized catgut No. 2. It is preferable to leave the vaginal wound open about an inch in the median line and drain between the anterior wall of the uterus and bladder. The drain should be removed on the fifth day.

Cesarean section in eclampsia greatly expedites delivery, and convalescence is very much smoother than when the cervix and lower portion of the uterus have been extensively lacerated by a severe forcible delivery.

In performing Cesarean section great care should be taken not to perforate the bladder. This accident can be prevented by keeping close to the uterus when the bladder is being separated from it.

In cases of operation for eclampsia ether is a much safer anesthetic than chloroform. In all cases where chloroform is used bicarbonate of soda should be freely given, if possible before the anesthetic, to prevent acidosis. It is also good practice when ether is given, but it is not as essential.

In the kidney type of eclampsia, especially when there are no epithelial or blood casts in the urine, the prognosis is much better than in cases where there are extensive changes in the liver.

The general treatment of eclampsia should be the same as in acute uremia in the non-puerperal state.

In all cases of puerperal eclampsia the prognosis is grave, especially if it continues after or follows delivery.

In all cases of eclampsia the blood pressure should be taken, and if it is above 120, it is very essential to institute appropriate measures to reduce it. Frequently the pressure will be 200 or above.

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TOPICS OF INTEREST TO THE RAILWAY  
SURGEON.\*

By J. G. DEAN, M.D., Dawson, Ga.

I express but mildly my real feelings when I assure you that I realize most keenly my unworthiness of the confidence evinced in me when at the city of Birmingham, Ala., last October, you saw fit to elect me, in spite of my absence from that occasion, to the highest office in your gift. I shall not accept this as so much a compliment to myself as an expression of your admiration for any member of this Association who, by regular attendance at its meetings each year, demonstrates unmistakably that interest in the work and objects of the Association which should characterize every surgeon of the Seaboard Railway. To say that I experienced no small feeling of pleasure when I was handed on the streets of my town a telegram from the worthy secretary of this Association telling me that I had been selected by you, whom I have learned to esteem most highly at our meetings, to preside in this great city, made famous by the name of that immortal man who "on the pillars of national independence laid here the foundation of a great republic," is but admitting to you my great delight at that time at the prospect of this honor. It is not, however, as the president of this great nation at the hands of some great political party that it has fallen to my lot to become your presiding officer on this occasion, but rather has this privilege been conferred by a body of men, members of the noblest of human professions, who have consecrated their lives to humanity. Hence to be your president now is an honor which I esteem no less than to have been able to have occupied the chair of the "Great Father," as the red man would term him who presides in yon White House.

I hope this will be an occasion, before it has ended, when every surgeon of this great system of railways will have shown by his presence his appreciation of the position he occupies. Not long since I addressed to each surgeon of the road a circular letter urging his presence here at this time. I was gratified to receive a number of replies from some who had not before attended a meeting of the

\* President's address read at tenth annual meeting of Association of Seaboard Air Line Railway Surgeons, Washington, D. C., Oct. 17-18, 1911.

Association, and some who have not been frequently with us, saying that they would be on hand, and a few promised to take part in the meeting.

There are several reasons why no one of us can afford to ignore this Association. What I shall say of these matters must of necessity be of an advisory or suggestive character, hence I trust you will accept this as such. In giving reasons for the necessity that should impel all of us to take a deep interest in the Association I must touch more or less on medical organization in general. Why should there be organization of any pursuit in life? Why should we, the surgeons of the Seaboard Railway, come together at all on these annual occasions? Why should not each surgeon plod along in an old, well-trodden rut in his own way without regard to the fact that there are ideas among other members of his profession which might perchance be of value to him if he but had an opportunity to learn of them? Why is it that our chief exerts himself in every way possible to make these occasions pleasant to all, and at each recurring meeting urges us earnestly to attend and take part in the discussions? Why is there not as much good reason for fostering with unanimity the Association as in pushing with determined energy every undertaking in life? I do not advocate organization in the same sense as is sometimes understood when some labor union is referred to, but organization is of course the reverse of disorganization—the one means success, if properly followed up, the other always means failure. What calling of mankind has achieved for humanity so much within the last third of a century as have the members of the medical profession? By far the most of this great good has come from organization, co-operation. "In union there is strength." This is true in medicine as well as elsewhere. By coming together occasionally in these organizations we not only learn to know and appreciate each other the more, but by contact and attrition, as it were, we are constantly imbued with new thought, and are thus better fitted for the place we occupy in life, not only as railway surgeons, but as surgeons and physicians at our respective homes. We are likewise thus made to see more forcibly the necessity of advanced education, not only in medicine proper, but in that which constitutes the foundation thereof, viz., literary attainment.

The doctor should be among the best educated, most cultured members of his community, and should lose no opportunity to advance the educational interest of the laity, for it is an educated laity of which we stand as much in need as of

advance in medical thought and knowledge. When our patrons are educated the competent doctor has little to fear from the wily quack.

Another matter which I think should occupy all of us as good citizens is the matter of every day politics. By concerted action through our organization as physicians and surgeons we can accomplish much in politics which will not only redound to the credit of the profession but to the good of mankind. Take a look into the halls of the State legislatures or into those of the National Congress, and see with what difficulty we meet when some bill is introduced which has for its object either the betterment of the health of mankind or the good of our great profession! Witness how parsimonious the average legislator is when asked for an appropriation for some humanitarian end. See the difference when he is asked to aid in furthering a bill which has for its object the prevention of disease in cattle, or the eradication of the boll weevil. Both these things appeal, not to his humanity, but to his pocketbook. All this must be righted by the medical profession. To do so we must by organization make ourselves felt by the politician. There is much in medicine which means good to mankind. If we could subscribe to the words of the great Shakespeare when he says, "Throw physic to the dogs, I'll none of it," then there would be no need of the great sacrifices we make in the effort to become what we are.

A few years ago I read a paper in this Association which had for its subject "The Railway Surgeon versus the Railway Attorney." In that paper I undertook to show that to the railway we are quite as important, if indeed not more so, than are the lawyers. I have not changed my idea of that situation. Permit me here then to say a few things in all candor, for we should be candid with those whose interest we are supposed to care for in our line. I have very high regard for our most excellent chief surgeon. I believe he is ever ready to co-operate with us in all that goes to benefit the surgical department. We are all, I dare say, faithful to our trust, but what has it cost each of us to become fitted for the position we hold, for the responsibility that position places upon us? What attorney of the road has spent nearly so much time or money in his preparation as has the competent surgeon thereof? Do not understand me to disparage the legal department; not at all. I admire a good lawyer, have more than once wished I were one myself. But it is the competent surgeon who is called upon very, very frequently to save the day for the railway attorney. What does that often mean to

the road? Thousands of dollars. There is now in my town pending a case against this, the Seaboard road. The claims against the company can be proven, I am fully convinced, very unjust and untenable, if the case is properly managed by those into whose hands it will fall. As surgeon there for the road I happen to know certain circumstances which I believe will save the road many dollars if my advice is taken. Such circumstances will continue to come up all along the line and the local surgeon will, as said before, be worth great things to the road. Now, of all this we are proud, glad to be able to aid the road in all that is honorable, and we know full well that we are not asked to do other than what is entirely honorable. For our services I do not believe we are receiving proper compensation. I can not think the great system for which we are giving our time and the benefit of our knowledge is willing to ask us to continue service without fair reward for what is rendered. I am employed in the same capacity by another road which, while not giving such fees as its surgeons desire and expect ere long to receive, gives considerably more than that received by the surgeons of the Seaboard. I was shown a few days since the fee bill of still another Southern road, and its fees were very close to those ordinarily charged in private practice, and why should not this be? Why should we not receive at the hands of the railroad fees similar to those obtained in our everyday work? I am sure we are well worth to the road as much. The Seaboard, as said a year ago by my predecessor, when making his address at Birmingham and touching on this same subject, has recently had many troubles. During this period no surgeon was willing to agitate this important matter. But that time is passed as I understand it. Then why should we not take such steps as will enable us to lay before the proper authorities the real situation? If it is necessary to give us a salary to enable the road to furnish us with the inter-state passes there should be no objection to allowing the present exceedingly nominal salary to stand and simply establish in addition a decent and reasonable fee system to apply when any service is rendered.

A "workman is worthy of his hire." The doctor is met constantly by the stern reality that the cost of living is not what it was of yore. Now, when he starts on his rounds it must be in an automobile, which costs at the outset enough to purchase several horses and buggies, and in upkeep afterward as much as several of the former modes of travel. This is but an instance of what we are subjected

to, and but an additional reason for increased remuneration for service rendered. I offer these thoughts for your consideration, and hope they may lead to something of value to all of us.

There is much more which I might say along this line and many things that might be added to the matter of our care for this organization, but there are quite a number of papers to follow on our programme, which will necessarily consume considerable time if discussed, as no doubt they will be, and there is no denying the fact that all of us will desire to spend considerable time in enjoying the sights of this great city before we turn our faces homeward; hence I conclude by again thanking you for the honor you have so kindly bestowed upon me.

### **THE TREATMENT OF VARICOSE ULCERS WITH ADHESIVE STRAPS.\***

By W. ARMISTEAD GILLS, M.D., Richmond, Va.

In looking up the subject I have been surprised to find that so little has been written about varicose ulcers, and while I am aware that the method I have employed in the cure of seven cases, covering a period of as many years, is not new, it does not seem to be in general use, as none of the larger works speak of it. This method consists in the obliteration of the ulcer by properly applied adhesive straps, together with rest in the recumbent posture.

The vessel usually at fault is the saphenous vein in the neighborhood of the internal malleolus. This vein is narrowed in calibre at frequent intervals, these contractions opening open into expanded pouches, which in appearance are not unlike the sacculations of the large intestine.

In cases which are well marked, both the calibre and the length are considerably increased and these portions of the vein appear as tortuous masses. The vessel walls are very thin, their normal tone and resistance gone, with presence of local edema and pain. A trauma in such cases which would be repaired under normal conditions, usually gives rise to a chronic ulcer or, if sufficient, to hemorrhage.

The ulcer may be preceded by eczema, which is the result of irritation and dirt, or of the friction of hard trousers.

I do not think it out of place to say that varicose ulcers occur on the lower and inner surfaces of the leg, whilst syphilitic sores are to be found on the outer side and near the knee.

This is a mechanical condition and should be treated mechanically. All of my seven cases had

\* Read at tenth annual meeting of Association of Seaboard Air Line Railway Surgeons, Washington, D. C., Oct. 17-18, 1911.



been of long standing, none of them for less than three years, one as long as seven. During this period the patients had used evaporating lotions, salves, dusting powders, cauterants, tonics, etc., without result. Three of them had taken so much iodide of potassium that the most easily digested foods were tolerated with difficulty, their digestion being seriously impaired. The location, history, or character did not suggest syphilis, nor did they respond to specific treatment.

I find that the roller bandage with rest is recommended by several authorities, but no suggestion of obliterating the diseased part by mechanical means by the employment of adhesive straps. The elastic stocking is advised in the care of varicose veins to prevent the occurrence of ulcers, which is very proper, but no mention made of the wearing of it after their appearance or after their cure to prevent recurrences. I make the patient remain in bed until the swelling has subsided, using well directed massage and keeping the bowels open.

At first granulations are stimulated with nitrate of silver, grs. 30 to the ounce; about three applications are all that is necessary. Protect the ulcer by sterile gauze and apply long adhesive straps to the dry skin on either side, until the skin wrinkles well. Fluid will be seen oozing from the ulcer by this squeezing process for several days. It is preferable to have the foot elevated upon a couple of pillows until it has returned to the normal size.

Adhesive straps used in this fashion occasion some pain the first few days, but this must be expected. These straps should be changed upon alternate days, but this, of course, is left to the discretion of the physician who may see fit to change them oftener.

The shortest time required to effect a cure in my seven cases was three weeks, and the longest seven weeks.

One patient after being dismissed cured wore the stocking two years and then abandoned it, and has not worn it for the past three years. The last time I saw her, while the scar did not give evidence of breaking down, the entire vein was very much distended and painful. I advised the purchase of another stocking.

A word about the stocking. It is a little trouble to take the measurements, which include the circumference just above the metatarso-phalangeal articulation; over the instep; one inch above the malleoli; at the calf; between the calf and knee, and the length from the heel as high as the last measurement.

A thin white cotton stocking should be worn un-

derneath the elastic stocking, as it preserves the life of the latter and absorbs the perspiration. Both should be removed at night.

The life of elastic hosiery is about eighteen months, the cost of the linen elastic, which is preferable to silk, is only \$1.85.

In conclusion, I wish to say that this measure is only intended for cases where the radical operation is contraindicated, or when it is impossible to obtain the consent of the patient when indicated. I have purposely waited before writing this paper in order that I might observe the exact conditions. In none of the seven cases has there been a recurrence, and the oldest one is now of seven years' standing.

No. 103 North Fourth Street.

### SOME ADVANTAGES OF MEDICAL EXAMINATION OF RAILWAY EMPLOYEES.\*

By WM. WESTON, M.D., Columbia, S. C.

The subject of this paper, from our standpoint as railway surgeons, at first glance may seem far-fetched and inappropriate, and appear more applicable to the pedagogue in the class room than ourselves in our less restricted field. But we must remember that with him as with us efficiency is the watch-word, and the only standard of twentieth century effort. It has taken not months but years of research to bring us to the very threshold of the realization that efficiency may be attained by the application of scientific knowledge and methods. To-day we stand in the full glare of what were a few years ago mere ideals and dreams, and consequently, as a result of this remarkable evolution and development, are confronted by opportunities that invite us to grasp them and avail ourselves of their manifold blessings.

If medical examination of school children has resulted in banishing the truant and the laggard from the school room, what might it not accomplish in banishing the indolent, the turbulent, the vicious and the incompetent from the railway service. Much has been thought and spoken of, but too little attempted, by those in charge of great vested interests upon this subject in relation to their business; therefore, as a well wisher of all agencies that are striving or may by their presence assist in the development of our section, I desire to speak briefly of some of the most important and relative phases of this subject in the earnest hope that at least

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some of you may agree upon its importance and go forth and preach the doctrine.

It seems no more absurd for a master mechanic to accept a locomotive whose valves are out of adjustment, or one of one hundred horse power when one of five hundred horse power is specified, than to select an engineer with defective vision or hearing, or one who is a neurasthenic, which denies him quick and ready perception and steady nerves. If the former would be unlikely, is it not true that the selection of a defective engineer would be ridiculous. In the former case there would merely be loss of power to acquire speed or draft, while in the latter case life and property are endangered with consequent results. We can anticipate the usual answer to this situation, namely, that such a condition does not exist. However, we must differ, and I merely recite one case from several in substantiation of this position.

Three years ago there occurred a wreck about sixty miles south of Columbia on a prominent railroad, in which the entire train—a fast New York and Florida passenger train running between sixty and seventy miles an hour on a straight road—ran into a long open switch upon which was a number of loaded coal cars. The train was derailed and several passengers injured. The engineer, apparently in a desperate condition, was taken to a hospital in Columbia. Upon thorough examination, conducted by several surgeons, no injury could be found, and it later developed that this engineer had been in several previous wrecks and had been a profound neurasthenic for years. Comment is unnecessary. Such cases are not infrequent. The writer knows of another engineer now on duty, who is a pronounced neurasthenic, and nothing but the best of good fortune can prevent a catastrophe, similar to the one mentioned, befalling him also. Unfortunately, if his were the only life endangered, the matter would not assume so serious an aspect.

From neglect to take advantage of the knowledge physical examination of employees would reveal, I believe that many times railroads have to pay damages for injuries for which they are not responsible. It is true that a thorough examination at the time of the alleged injury may often put a check upon this variety of graft, as I will illustrate by the two following cases:

Case 1. A brakeman fell from the top of a car, apparently seriously injuring himself. He was taken to a local hospital, stripped and examined. Beyond a few minor bruises no serious injury could be found. But an old over-riding fracture of the

left clavicle was discovered and note made of it in the presence of witnesses. Some months later the man sued, and the evidence he produced of the injury was the fractured clavicle from which he says he suffered untold pain, resulting in insomnia, permanent loss of strength, etc. When the defendant's witnesses were put on the stand each of us testified that the injury antedated the accident, the original notes being produced. The man was forced to acknowledge that he had previously had a fall and was hurt about the same shoulder. Of course a verdict was rendered for the defendant.

Case 2. P. E., a traveling salesman, was on a passenger train which ran off the track. All passengers were asked if they were injured and all answered in the negative save this man, who said his leg was seriously hurt. He was sent to his home in Columbia, the leg was examined, and the injury was definitely diagnosed as a chronic ulcer of the leg of long standing. Upon further investigation the diagnosis has been confirmed. The man, I understand, is threatening suit, but I expect he will decide to settle, since the matter has been plainly discussed with him.

Another phase of this question that is of great interest not merely to the railway officials but to the public generally, is the almost habitual unrest and dissatisfaction prevalent among railway employees, resulting in strikes, disorder, and often violence. I do not believe that these conditions are the fruits of injustice or unjust labor without commensurate compensation. We know as a matter of fact that hours of labor are becoming shorter, without reduction in wages. Certainly some solution of this matter must be found, or else railroads will become bankrupt. It has been proven beyond doubt that from fifty to seventy per cent. of school children in the South suffer from some more or less serious physical defect. By the time adolescence is reached many of these have either been cured or spontaneously recovered, while some die, but the rest, approximately twenty-five per cent., drift into the various vocations offering a livelihood. It is well known that the worst of these seek employment offering excitement, frequent change of scene without much effort on their part. It is also well known that they are discontented, usually feeling that their efforts are neither appreciated nor adequately rewarded. Their employer is looked upon as their natural enemy and oppressor. Not infrequently they bear the stigma of degeneracy. Upon investigation it will be often found that they are the children of alcoholic or syphilitic parents. If

then these facts are factors entering into this question, are they not worthy of consideration and investigation. I do not hesitate to say that the most successful corporations are the ones that are requiring a sound mind in a healthy body as a prerequisite of employment. The only manner of ascertaining whether or not this requirement exists is by a thorough examination conducted by a competent physician.

To briefly summarize, some of the more evident advantages to be gained by the adoption of this system are the following:

Prevention of accident and consequent saving of life and property, resulting from defective sight or hearing. Noting the presence of disease, individual habits, hereditary tendencies and evidences of degeneracy. A full personal history in all its phases.

In conclusion I would urge you to investigate this matter without prejudice, to consider the subject not as theoretical without practical value, rather the theory of the pedagogue, the sociologist, or the psychologist, but as one of the important agents looking to the solution of a very grave present crisis in the affairs of great corporations.

## REPORT OF A CASE OF COMPOUND FRACTURE OF PATELLA AND LEG.\*

By R. B. EPTING, M.D., Greenwood, S. C.

In 1909, G. C., colored, a former employee of the Seaboard Air Line Railroad Co., was beating a ride from Greenwood to Abbeville, a distance of about seventeen miles. The train was wrecked about half way between the two places, and several were injured, one of them being the patient, who was on top of one of the rear cars.

Drs. Neuffer and Gambrell, of Abbeville, were taken to the wreck and gave immediate service, but as the patient wished to return to his home in Greenwood, his leg was put in temporary splints so that he could be driven home that night. When he arrived there, I was authorized by the company to take charge of him.

His knee was lacerated and the patella divided in two pieces, as smoothly as if cut with a saw. Two fingers could be placed between the pieces of bone. There was also a compound fracture near the middle of the leg. With the assistance of Dr. Lander (who was then a student), who cleansed all the parts as well as possible outside of a hospital, the patella

was wired together, then periosteum and skin sewed separately. A small opening was left for drainage. The broken bones in the leg were placed in apposition, and the limb put in a fracture box.

The leg was dressed daily for about ten days, when it was put in a plaster-of-Paris cast, windows being left so that the wounds could be dressed. He made a good recovery, and there is no stiffness at all. He has since been firing for the company.

There was nothing unusual about the injury or treatment, but the results were gratifying. What interested me was that he was injured by the Seaboard Railroad and that the company placed him in the hands of their surgeon. Three days after the accident the company withdrew from the case. If he had drifted into incompetent hands, or had no further attention, or had the results been bad, would not the company, then, have been responsible for damages?

## Surgical Cleanings.

**Appendicitis and Colitis.**—Dr. R. Toelken (*Deut. med. Wochens.*, No. 40, 1911) regards the diagnosis of acute appendicitis in the early stage as still a difficult matter. Sonnenburg relies upon blood examinations to distinguish between appendicitis and intestinal catarrhs, and considers castor oil not only as a curative remedy in some cases, but also as an aid in diagnosis. Inflammatory conditions of the adnexa are found to be present in at least one-third of the women admitted to Sonnenburg's division of the Moabit Hospital of Berlin. Acute gastroenteritis with diffuse colicky pains over the entire abdomen, especially tenderness in ileocecal region, due perhaps to the participation of the appendix in the general catarrh, may be confounded with appendicitis. Such cases are probably often regarded as appendicitis cures without operation. In Sonnenburg's clinic, from April 1, 1907, to January 1, 1911, 462 cases of acute appendicitis have been treated with castor oil with rapid improvement, without operation, and with not a single death. In 23 other cases no relief occurred and immediate operation was resorted to, also without a fatality. Where an attack is of slight character, but not the first, operation is done at an early period, since the fact of recurrence shows that there is a mechanical obstruction which demands removal. To obtain some information regarding the later results in the cases treated with castor oil, letters of inquiry were sent to 193 patients and answers received from 96. Of these 7 had had recurrences, 16 had been operated upon at a later period, and 14 still suffered from occasional disturbances. In 62, that is 65 per cent., there had been no return of the disease.

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**Transverse Incisions of the Abdomen.**—Dr. C. F. Denny (*St. Paul Med. Jour.*, Dec., 1911) sums up the advantages of these incisions as follows: 1. One does not have to remember countless different incisions for different procedures. 2. Better access to the operative field. 3. A small or large space is easily obtained. 4. If drainage is needed, a better scar results. 5. Less liability to lose the packing. Less is needed. No shaving of pubic hair necessary.

**Hydrops of Bile Ducts.**—Dr. B. Brunner (*Deut. Ztschr. f. Chir.*, Bd. 111, Hft. 4-6) reports three cases of obstruction of the bile ducts, comprising one due to pancreatitis, one to calculus, and one to tumor, in which there was a collection of a clear watery fluid or colorless pus in the gallbladder and ducts. The origin of this secretion seemed doubtful, although there was some reason to believe that it was derived from the pancreas. The author points out that when puncture of the gallbladder shows the presence of a fluid free from bile this does not prove that there is an occlusion of the cystic duct, but demonstrates the necessity of a thorough exploration of the biliary system.

**Pelvic Infections in Women.**—Dr. J. F. Kuhn (*Calif. State Jour. of Med.*, Dec., 1911) believes that peritoneal infections of the pelvis are easily controlled because with the Fowler position the infectious material is confined to the pelvic cavity, where toxins are more slowly absorbed than in the upper peritoneal regions. And in consequence, the system produces antibodies rapidly enough to counteract their effects. Local treatment with suitable antiseptics is, of course, necessary, but a curettage should never be resorted to until all signs of acute inflammation have subsided. Special stress is laid by the author upon treatment through the rectum with normal saline solution. By the method suggested the rectum is distended at six-hour periods, with from one to four pints of the solution at 105 deg. F., increasing the quantity gradually as tolerance for a larger amount is established. Intermittent periods of hyperemia are thus produced, hastening the destruction of the infecting organisms, inducing more rapid absorption of the resultant plastic lymph, and preventing the formation of the dense adhesions so commonly seen in neglected cases. This has all of the other advantages of normal saline; stimulating and aiding the emunctories in ridding the system of the products of infection; fortifying the system during its struggle to produce antibodies, and, by the action of heat, locally, relieving the patient of the distressing pain which is her chief complaint.

**Treatment of Tuberculous Glands with Roentgen Rays.**—Dr. B. Baisch (*Berlin. klin. Wochenschr.*, No. 44, 1911) reports from the Wilms' Surgical Clinic at Heidelberg 28 cases of tuberculous adenitis treated with the x-ray. The glands were either simply enlarged or suppurating, caseous, or ulcerated with fistulous tracts. Enlarged glands if treated at an early period with the rays showed a rapid diminution in size even to the point of com-

plete disappearance. In the more chronic cases considerable decrease of the lymphomata was observed, a small hard remnant being left which consisted of a capsule of cicatricial connective tissue enclosing a central area of caseous matter. In the suppurating or ulcerative types of tuberculous glands a complete cure could not be obtained with the x-ray until after incision and evacuation of the pus. While in simple non-suppurating lymphomata Roentgen treatment is more slow in producing results than the operative, it has the advantage that small glands, which may escape the notice of the operator and yet later give rise to recurrences, are intensely affected by the rays. Moreover, recurrence can be controlled by resumption of the treatment, while deforming scars are avoided. In other types of lymphomata requiring minor operative intervention the cosmetic result under subsequent use of the rays is much better. As regards tuberculosis of bones, joints, and soft parts, of which 15 cases were treated, the author summarizes his views as follows: Radiotherapy is indicated in all cases of fungous disease of the joints or tendon sheaths. In tuberculous disease of the wrist and ankle-joint the rays have a more marked effect than conservative surgical treatment, because they act upon all the diseased structures. This applies even to cases in which there is involvement of the bones. Particularly good results have been obtained in spina ventosa or disease of some of the metacarpal, metatarsal, carpal and tarsal bones. On the other hand, when applied to the larger joints, such as the knee, hip, and shoulder the effect of the rays upon the bones is very slight.

**Tabes Dorsalis as It Concerns the Urologist.**—Dr. H. Klussman (*Pacif. Med. Jour.*, Dec., 1911) remarks that the surgeon can safeguard himself against many errors of diagnosis by remembering that the initial symptoms of locomotor ataxia may in certain cases be urinary incontinence, and give clinical manifestations strongly resembling those of prostatism and vesical calculi. Having these possibilities in mind, the surgeon should approach every supposedly renal, vesical and prostatic case with the greatest possible circumspection. If he obtains a history of syphilis he should be doubly on his guard. Often careful questioning reveals the fact that, although the urinary disturbance is the factor which is at the moment of paramount importance in the mind of the patient, it is usually far from being only one in a given case. Usually it will be found that the patient has for a considerable time prior to the urinary disturbance been the victim of fleeting pains of a neuralgic character; that he has not been quite sure of his footing in making his way in the dark; that he sometimes pitches forward over the washbowl when his sight is obscured with a towel; and that he has occasionally seen double or experienced other visual disturbances. Not all cases of locomotor ataxia are absolutely typical, it is not necessary that they should be. It is enough for all practical purposes that the pupils do not respond to light while retaining their power of accommodation—and that the knee jerk is abolished or diminished.

**A Method of Bridging Over Defects in the Liver.**—Dr. P. Clairmont, in a case reported in the *Zentbl. f. Chir.*, No. 43, 1911, bridged over a defect on the surface of the liver due to removal of a tumor by means of the peritoneal coat of the gallbladder. This was stripped from the gallbladder after its removal. The raw surface of the flap was placed against the liver, the serous surface being directed towards the abdominal cavity, and was sutured in place with catgut. The application of this flap arrested the bleeding from the cavity left after the removal of the tumor and prevented the discharge of particles of the growth into the abdominal cavity.

**Treatment of Subacute Tendosynovitis.**—Dr. A. Bum (*Wiener klin. Wochensch.*, No. 47, 1911) advises massage in the treatment of subacute serous and serofibrinous forms of tendosynovitis, which he considers by far the most frequent forms. He believes that massage causes rapid disappearance of the serous or serofibrinous exudate by forcing it into the lymph channels than the ordinary treatment. He has observed more than 1,000 cases of subacute and chronic tendosynovitis, especially that affecting the sheaths of the tendons of the abductor longus pollicis, adductor brevis, extensors of the hands and fingers, as well as the tibialis anticus, and thinks that the cause of this condition usually to be found in overexertion, as in work or active exercise. Massage in cases of six to ten days' duration consists in stroking the affected tendon with the point of the thumb directed horizontally, beginning at the periphery of the affected area and extending far beyond towards the center. The point of the other thumb is made to closely follow the first, so that the affected area is constantly acted upon. Only moderate pressure should be used.

**Surgical Treatment of Exophthalmic Goiter.**—Dr. L. Rehn (*Deut. med. Wochensch.*, No. 47, 1911) considers ligation of the thyroid arteries of limited value in Graves' disease, whether employed as a preliminary measure and followed shortly by excision, or undertaken primarily for the purpose of causing shrinkage of the goiter. Owing to the abundant anastomosis of the thyroid arteries ligation of two of these vessels gives unreliable results, while ligation of three or even four has proved unsatisfactory and is attended with risk of injury to the parathyroid bodies. Another disadvantage of this method is the slowness of the effect. Rehn believes that even preliminary ligation is best omitted, since by doing the operation in two stages the danger is not reduced. The three requirements in the surgical treatment of Graves' disease are to prevent loss of blood, preserve the parathyroid bodies, and protect the recurrent nerve. The author employs a large curved incision extending from the sternum below to a point above where the superior thyroid can be easily reached. After exposure of the operative field the sternohyoid and sternothyroid muscles are divided and the sternocleidomastoid forcibly retracted, after which the superior thyroid artery is

tied. If the capsule of the goiter is adherent, its separation may give rise to considerable hemorrhage, necessitating immediate ligation of the inferior thyroid. For this reason it is better to first search for the large vessels of the neck and then to proceed to dissect out the goiter, starting at that portion which is in relation with the common carotid and carefully lifting the gland, together with its external capsule, to prevent rupture of the arteries which are often very friable. The inferior thyroid artery should be exposed as far away as possible from the goiter. When found it should be dissected out very cautiously, with special attention to avoiding injury of the recurrent nerve, which crosses the artery. The vessel is best ligated proximally to the place of crossing. After the application of forceps the isthmus is divided; this almost completely cuts off the blood supply to one-half of the goiter, which can now be separated without any fear of hemorrhage, although it may be necessary to carefully ligate all the venous trunks or even the art. ima. To protect the parathyroids and prevent entanglement of the recurrent nerve in the scar, a broad strip of the true capsule of the goiter, together with some goiterous structure, is preserved, this being sutured to the capsule of the remaining half of the affected thyroid. The author states that many of the patients can be operated upon under local anesthesia, while in others ether, preceded by subcutaneous injection of pantopon, proved very satisfactory.

**Volvulus.**—In the treatment of this condition Dr. E. P. Magruder (*Surg., Gyn. and Obst.*, Dec., 1911) emphasizes the earliest diagnosis and the earliest operation thereafter if there is the slightest chance to save life; careful and rapid technic; resection—always if the bowel is gangrenous—and an end-to-end anastomosis. In milder cases the gut is simply entered in the opposite direction to the volvulus. Other things being equal, the quickest work is the best, but to make the knuckle leak-proof is worthy of any man's time and of paramount importance. The frequent association of volvulus with strangulated hernia should be always borne in mind, and the coil pulled down and examined or the abdomen opened when in doubt. Further advisable is the removal of the extravasation by gentle, moist sponging if possible; by normal saline or 1 to 10,000 silver nitrate irrigation if necessary; abundant drainage, preferably from the three points, cul-de-sac, right and left iliac fossæ; rectal injections of normal salt solution, intermittently, four to eight ounces at a time every two hours, or continuously, forty drops per minute; bowel movement at the end of the thirty-sixth hour induced by mouth medication, preferably by castor oil, and all food and liquids restricted until then; the bromides for sedatives; the Fowler position, modified to the more and more acute angle and gradually assuming the horizontal position, or alternating the modified Fowler with the Trendelenburg position; the absolute interdiction of opium in any form until postoperative bowel movement.

**Surgical Treatment of Cancer of the Prostate.**—Dr. H. L. Posner (*Berlin klin. Wochensch.*, No. 44, 1911) remarks that the early diagnosis of cancer of the prostate is very difficult on account of the lack of any positive means of differentiating it from prostatic hypertrophy. The most reliable information is obtained by rectal palpation. This shows the presence of marked hardness and nodular surface of the prostate, and restricted movability of the gland. On account of the indefiniteness of the diagnosis an exploratory incision is always indicated in obscure cases. Radical extirpation can be performed only by the perineal route, the lateral incision being preferred in Wilms' clinic at Heidelberg.

**Operations for Cancer.**—Dr. J. M. Wainwright (*N. Y. Med. Jour.*, Dec. 9, 1911) urges that operations must be made for complete removal. A patient with a cancer demands heroic surgery just as one with intestinal obstruction. The adjacent lymph glands must be dissected *en bloc* wherever possible for every cancer, however small. A cancer that is only cut across is always made much more malignant than before. In connection with extensive operations, the freezing microtome cannot conscientiously be omitted. In doubtful cases it may show an inflammatory condition and save a needless mutilation. Indeed, there are many cases doubtful clinically where the proper course can be determined only by this method. It may show no operation to be necessary or it may show us cancer where from clinical symptoms we should not have advised a radical operation for many valuable months. As to the x-ray, the writer's personal view is that it is rarely justifiable as a primary treatment except in those cases seen for the first time after the operable period is past. It is felt, however, that its use after operation is sadly neglected. It is demonstrated beyond argument that the x-ray has a marked selective destructive action on cancer tissue. It is equally certain that this action will be greater on cells which are scattered, dislodged, or lying loose on the tissues of, for instance, the large breast wound. It is another fact that for all cases and all surgeons such cancer cells are left behind in the wound or its vicinity over one-half the time. It is equally certain that the x-ray can much more easily destroy these cells when they are simply loosely disseminated in the tissues than after they have attained a new foothold, a new blood supply, and formed palpable masses. In cancer above all other diseases we must employ every therapeutic resource. Wainwright firmly believes that no cancer operation is complete without the after use of the x-ray except in certain deep-seated cases where the ray can not be expected to penetrate with effect. The time to use it is, if possible, on the operating table, with the flaps turned back so that the x-rays play directly on the tissues of the wound where there are still cancer cells in the majority of cases. Then the intermittent use of the ray should be continued for months or years, according to the individual case. This is the only

rational time. The x-ray is generally useless after a recurrence, that is, after the disease is again clinically apparent. In the author's opinion, the word recurrence is entirely a misnomer as applied to cancer. It was invented by the surgeon in order to put the onus on Providence. No cancer ever yet recurred. The same cancer simply kept on growing—slowly it may be, but surely. If we realized this fact more acutely, our methods of attacking the disease might be improved.

**Occlusion of the Mesentery Vessels.**—Dr. J. Gobiet (*Wiener klin. Wochensch.*, No. 45, 1911) has collected from the literature 68 cases operated upon for occlusion of the mesenteric vessels, with 12 recoveries, that is, 82 per cent. mortality. In almost all of them there were present severe symptoms of ileus and often the operation was done in extremis. Of 29 cases operated upon for arterial embolism 3 recovered, and of 39 operated upon for venous thrombosis 9 survived. As regards the technique of intestinal resection for this condition, the author advises spinal analgesia, resection as far as possible within healthy tissues, evacuation of the stagnating intestinal contents, complete closure of the divided ends of the gut, and lateral anastomosis as far away from the closed ends as possible.

**The Etiology of Retroflexion of the Uterus.**—Professor H. Fritsch (*Deut. med. Wochensch.*, No. 41, 1911) has observed several cases in which retroflexion occurred suddenly after a trauma. One of his patients, a young girl whose internal genitals had previously been normal, after a fall upon her buttocks experienced at once an intense pain in the lower portion of the abdomen, and an examination on the same day showed the existence of a retroflexion. After reposition under anesthesia and the use of a pessary the pain disappeared, although not until the lapse of a number of weeks. Another of his patients, a hysterical girl, who also had had a normal painlessly movable uterus, met with a similar accident, which was followed immediately by violent abdominal pain and tenderness, persisting for a number of days. The uterus was found retroflexed, and could not be straightened on account of the severe pain until she had been anesthetized. In another case, a woman, two weeks after childbirth, slipped on the stairs and fell upon her buttocks, which was followed by considerable retroflexion of the large uterus and profuse hemorrhage. Fritsch believes that similar conditions may result from protracted mountain climbing with the body bent forward. He thinks that the pressure of a large retroflexed uterus may be sufficient to cause parametric adhesions, which may give rise to persistent pain and inability to work. These complications of retroflexion are observed in seamstresses who spend many hours over the sewing machine and in piano players. If in such cases reposition followed by the insertion of a pessary or operative intervention be resorted to, all the existing symptoms sometimes vanish with startling rapidity.



**The Vaginal Route in Cancer of the Cervix Uteri.**—From an experience of ten years comprising 445 operations Professor Schauta (*Monatssch. f. Geburtsh. u. Gynäk.*, Bd. 33, Hft. 6) is not inclined to regard the vaginal and abdominal methods as competing procedures, each having its own place. The vaginal route is indicated in cases of marked obesity, myocarditis, pronounced anemia, cachexia, and advanced age. This applies also to beginning carcinoma with non-involvement of the parametrium, where the vaginal route is preferable on account of the smaller risk. The chief aim in the future will be to reduce the primary mortality of each of these operations and increase the margin of operability by earlier intervention.

**Operations for Hernia.**—Lt. Col. Ruotte, (*Mil. Surg.*, Dec. 1911) recommends the following technic in operating for inguinal hernia: An incision, exclusively cutaneous, is made to an extent of 3 centimeters at the most, exactly corresponding to the external opening of the inguinal canal without reaching the origin of the scrotum. When the skin has been cut, the subcutaneous tissue appears, with the veins; the forefingers of each hand, back to back, tear the adjacent tissue down to the inguinal opening, discover the cord, which is isolated and brought out on the finger. Amongst the constituent elements of the cord, it is easy to recognize the sac, which is to be separated from the other elements, tied as high as possible, at its origin, and divided. One or two catgut sutures are put in so as to narrow the inguinal opening, and the skin is joined with two silkworm sutures or with clasps. The duration of the operation is three or four minutes. The patient remains fifteen days in bed, and is fit for duty after about four weeks. Ruotte has discarded all the ordinary operations for femoral hernia because none of them protects against relapses. Instead of extirpating the sac he makes use of it for obstructing the crural ring. After the patient has been put in Trendelenburg's position, an incision is made above the crural arch, and parallel with it. The skin, subcutaneous tissue and muscles are cut, until the subperitoneal space is reached. When the sac has been found and identified it is separated from the surrounding tissues with all necessary care, principally on the external side, where it is very close to the iliac vein. When the sac has been freed, if no contents can be perceived in its cavity, it is cut between two ligatures; the two stumps resulting from the section are removed one from the other and the wound is sutured with metal wire. A second incision is made vertically in the middle of Scarpa's triangle, in order to enter the cavity of the sac, into which a tent of sterilized gauze is inserted, in order to obtain union of the walls. Four or five days after, the tent is removed and recovery is rapid. If there are adherent organs in the sac, as soon as it has been separated, the surgeon makes the second incision in Scarpa's triangle, opens the sac, loosens the adhesions, restores the organs to the abdominal cavity, and then proceeds as before.

**Open Method in Treatment of Fractures.**—Dr. E. A. Vander Veer (*Alb. Med. An.*, Dec., 1911) says that while he does not wish to be thought as presenting a brief for the hospital treatment of fractures, he believes the time is coming, if not already here, when the majority of fracture cases should be sent to the hospital, just as we send our appendicitis cases, etc., for operation. In fact, the majority of appendix operations are a great deal easier to perform than the reduction of a fracture and its proper dressing.

**Treatment of Acute Purulent Inflammations of the Joints.**—From a clinical study of this subject Dr. L. Dreyer (*Beitr. z. klin. Chir.*, Bd. 75, Hft. 1-2) concludes that the application of an icebag in joint infections is of great value, especially at the beginning of the process, while in severe cases with disturbance of the general health the long continued use of cold is not to be recommended. The use of the thermophore in connection with dressings soaked in an alcoholic solution of resorcin was found to have a very beneficial effect upon the swelling. Injections of tincture of iodine into the affected joint gave strikingly good results, although carbolic acid also proved serviceable. Of all the methods investigated the author prefers the following: Simple puncture and injection of 3 to 5 ccm. of a 3 per cent. tincture of iodine, together with the use of the thermophore and the application of compresses moistened with alcoholic solution of resorcin. This treatment is indicated even in severe cases of joint infection.

**Formation of an Artificial Ductus Choledochus by Means of a Simple Drainage Tube.**—Professor Wilms (*Deut. med. Wochens.*, No. 47, 1911), in a paper read before the German Association of Scientists and Physicians, advises that in cases in which the choledochus has been so damaged by cancer or cicatricial tissue as to no longer serve as a channel for the bile, an artificial canal can be constructed in the following manner: A simple drainage tube is introduced into the hepatic duct and fixed there with a needle, the lower end being inserted into the adjacent duodenum. The middle portion of the tube lying more or less free in the abdominal cavity is covered with omentum or colon. In the course of time healing of the tissues around the drainage tube takes place, as could be determined in two cases. In one case operated upon almost eight months ago and in another four months ago, the tube functionated excellently, without the formation of an external fistula. The previous painful attacks due to cholangitis and adhesions disappeared completely. Experiments on animals showed that the formation of such a channel to replace the ductus choledochus may act satisfactorily for months. The method, however, is only indicated where it is necessary to refrain from any prolonged operation, and when simple anastomosis between the gallbladder, hepatic duct and stomach or intestine is either impossible or very difficult.



# Monthly Index of Surgery and Gynecology

- Abuse of Local Treatment in Gynecology (Ill. Med. Jour., Dec., 1911). H. T. Byford, Chicago.
- Accidents and Deaths from Exploratory Puncture of the Pleura (Surg., Gyn. and Obst., Dec., 1911). H. Dayton, New York.
- Acetone in Inoperable Cancer of the Uterus (Maryl. Med. Jour., Dec., 1911). A. Samuels.
- Avulsion of Nerves for Neuralgia; Thiersch Method (South. Med. Jour., Dec., 1911). H. P. Cole, Mobile, Ala.
- Breast Affections. A Series of 100 Cases (Maryl. Med. Jour., Dec., 1911). R. Winslow, N. Winslow, Baltimore.
- Bronchus, Surgery of the (Lancet-Clin., Dec. 9, 1911). B. M. Ricketts, Cincinnati.
- Caesarean Section and Repeated Caesarean Section for Contracted Pelvis (Edinb. Med. Jour., Dec., 1911). J. M. Gibbon, Edinburgh.
- Carcinoma, General Principles of Operative Treatment of (Jour. of Mo. S. M. A., Dec., 1911). A. E. Hertzler, Kansas City.
- Carcinoma of the Colon, Early Diagnosis of (An. of Surg., Dec., 1911). J. Burke, Buffalo.
- Carcinoma of the Uterus (St. Paul Med. Jour., Dec., 1911). M. M. Ghent, St. Paul.
- Causes of Postoperative Complications and Early Voluntary Muscular Movements with Avoidance of the Usual Confinement to Bed as a Means of Combating Them (N. Y. S. Jour. Med., Dec., 1911). W. F. Burrows, New York.
- Choice of the Anesthetic (Jour. A. M. A., Dec. 2, 1911). A. D. Bevan, Chicago.
- Cleft Palate, the Treatment of (Lancet, Nov. 26, 1911). R. W. Murray, Liverpool.
- Colotomy and Some Misconceptions of its Results (Lancet, Nov. 18, 1911). P. Daniel, London.
- Correction of Nasal Deformities by Mechanical Means and by the Transplantation of Bone (Med. Rec., Dec. 9, 1911). W. W. Carter, New York.
- Corrective Placement of the Uterus: New Ventral Suspension (N. Y. Med. Jour., Dec. 16, 1911). G. S. Foster, Manchester, N. H.
- Deformity of Pott's Disease, the Operative Treatment of (An. of Surg., Dec., 1911). R. Whitman, New York.
- Drainage: Essential Element in the Surgery of the Biliary Tract (Am. Jour. Obst., Dec., 1911). C. N. Smith, Toledo.
- Ectopic Gestation, The Surgery of (N. Y. Med. Jour., Nov. 26, 1911). E. McDonald, New York.
- Excision of the Rectum and Sphincter for Carcinoma (Ky. Med. Jour., Dec., 1911). B. Asman, Louisville.
- Exophthalmic Goiter, Surgical Treatment of (Northw. Medic., Dec., 1911). M. B. Tinker, Ithaca, N. Y.
- Experiences of a Beginner in the Use of Lane's Plates in Fractures (Bost. Med. and Surg. Jour., Nov. 30, 1911). F. B. Lund, Boston.
- Factors Entering into the Mortality of Acute Intestinal (Mechanical) Obstruction (Am. Jour. Obst., Dec., 1911). J. Y. Brown, St. Louis.
- Fibroids, Relationship of, to Sterility (Bost. Med. and Surg. Jour., Nov. 30, 1911). E. B. Young, J. T. Williams, Boston.
- Fibromyomata from the Standpoint of the Gynecologist and Obstetrician (Surg., Gyn. and Obst., Dec., 1911). L. E. Frankenthal, Chicago.
- Fractures of the Humerus, an Improved Method of Treating (Jour. Ind. S. M. A., Dec. 15, 1911). H. R. Allen, Indianapolis.
- Fracture of the True Pelvis and the Mode of Treatment (Tex. S. Jour. Med., Dec., 1911). A. B. Small, Dallas, Tex.
- Fractures, the Operative Treatment of Badly United (Lancet, Nov. 4, 1911). W. A. Lane, London.
- Fractures, Why and When to Operate on (Bost. Med. and Surg. Jour., Dec. 7, 1911). F. J. Cotton, Boston.
- Gastric and Duodenal Ulcer. A Record of 110 Recent Operations (An. of Surg., Dec., 1911). A. B. Mitchell, Belfast, Ireland.
- General Peritonitis, Treatment of (Lancet-Clin., Nov. 26, 1911). D. N. Eisendrath, Chicago.
- Genitourinary Surgery, Recent Progress in (Bost. Med. and Surg. Jour., Dec. 7, 1911). F. S. Watson, P. Thorndike, Boston.
- Goiter, Surgical Treatment of (Ky. Med. Jour., Dec. 1, 1911). J. R. Walthen, Louisville.
- Gynecology, Mistakes in Diagnosis and Treatment (Canad. Med. Assoc. Jour., Dec., 1911). W. Gardner, Montreal.
- Hammock Appendix (Med. Rec., Dec. 2, 1911). W. R. McKinley, Columbus, Miss.
- Hemorrhagic Menopause Uterus (Northw. Medic., Dec., 1911). T. C. Witherspoon, Butte, Mont.
- Hernia, Contribution to Surgery of (Surg., Gyn. and Obst., Dec., 1911). W. R. Cubbins, Chicago.
- Improved Method of Approaching the Lower Abdomen (Surg., Gyn. and Obst., Dec., 1911). G. W. Roberts, New York.
- Infection of the Gallbladder and Bile Tract; Surgical Treatment (Lancet-Clin., Dec. 16, 1911). W. Fuller, Chicago.
- Inguinal Bubo, Diagnosis and Treatment of (Bost. Med. and Surg. Jour., Dec. 7, 1911). W. P. Cones, Boston.
- Intestinal Tuberculosis, Remarks upon the Pathology, Symptoms, Diagnosis and Treatment of (Jour. Mich. S. M. S., Dec., 1911). S. G. Gant, New York.
- Lane Kink of the Ileum in Relation to Chronic Appendicitis, Further Observations on (Va. Med. Semi-Mo., Dec. 8, 1911). C. C. Coleman, Richmond.
- Laparotomy for Pelvic Disease, General Care of Cases of, Before and After Operation (Am. Jour. Surg., Dec., 1911). B. H. Wells, New York.
- Leucocyte Count, Value of, in Acute Surgical Conditions (An. of Surg., Dec., 1911). H. W. Hewitt, Detroit.
- Lung Abscess (Canad. Med. Assoc. Jour., Dec., 1911). E. M. von Eberts, Montreal.
- Modified Autogenous Grafting and Turning Skin Flaps to Cover Granulating Surfaces (An. of Surg., Dec., 1911). M. B. Tinker, H. L. Prince, Ithaca, N. Y.
- Nephropexies, Five Hundred (Ky. Med. Jour., Dec. 15, 1911). W. Billington, Birmingham, England.
- Nephroptosis (Ky. Med. Jour., Dec., 1911). C. W. Suckling, Birmingham, England.
- Nitrous Oxide with Oxygen as an Anesthetic in General Surgery, a Consideration of (N. Y. Med. Jour., Dec. 9, 1911). H. W. Kearney, Washington, D. C.
- Non-Traumatic Large Hemorrhage into the Kidney Substance or its Surroundings (An. of Surg., Dec., 1911). R. S. Fowler, Brooklyn.
- Obese Abdominal Wall (Am. Jour. Obst., Dec., 1911). F. Reeder, St. Louis.
- Open Conservative Perineal Prostatectomy (Med. Herald, Dec., 1911). J. T. Axtell, Newton, Kas.
- Operation for Extensive Prolapse of the Uterus (Bost. Med. and Surg. Jour., Nov. 30, 1911). S. Rushmore, Boston.
- Pathological Relation of the Anesthetic to Surgical Procedure (N. Y. S. Jour. Med., Dec., 1911). W. C. Woolsey, Brooklyn, N. Y.
- Pelvic Infections, Proper Operative Period and Methods of Drainage in (Jour. A. M. A., Nov. 26, 1911). L. G. Bowers, Dayton, O.
- Penineorrhaphy, Efficiency of the Different Operations for (Va. Med. Semi-Mo., Dec. 8, 1911). G. P. Hamner, Lynchburg, Va.
- Pericystitis (Jour. A. M. A., Dec. 16, 1911). M. L. Harris, Chicago.
- Peritoneal Adhesions, Studies on. With a Contribution to the Treatment of Denuded Bowel Surfaces (An. of Surg., Dec., 1911). E. H. Richardson, Baltimore.
- Physiology and Pathology of the Gallbladder in Relation to its Removal (Jour. Minn. S. M. A., Dec. 15, 1911). H. P. Ritchie, St. Paul.
- Pilo-nidal Sinuses (Charl. Med. Jour., Dec., 1911). H. Norris, Rutherfordton, N. C.
- Poliomyelitis, Surgical Treatment of (Pa. Med. Jour., Dec., 1911). G. G. Davis, Phila.
- Postoperative Retention of Urine and Cystitis (Jour. A. M. A., Dec. 16, 1911). J. H. Jacobson, J. G. Keller, Toledo, O.
- Preputial Redundancy: An Operative Technique for its Correction (Am. Jour. Urol., Dec., 1911). W. W. Townsend, Rutland, Vt.
- Prevention of Deformity (N. Y. S. Jour. Med., Dec., 1911). W. R. Townsend, New York.
- Profuse Recurrent Gastric Hemorrhage, with Report of Cases and Description of an Instrument for Viewing the Gastric Interior at Operation (Clevel. Med. Jour., Dec., 1911). F. C. Herrick, Cleveland.
- Prolapse of Uterus, Remarks on (New Orl. Med. and Surg. Jour., Dec., 1911). W. Kohlmann, New Orleans.
- Pruritus Ani: the Probable Cause and an Outline of Treatment. A Preliminary Report Based on Results of Original Research (Jour. A. M. A., Dec. 9, 1911). D. H. Murray, Syracuse.
- Raynaud's Disease (Surg., Gyn. and Obst., Dec., 1911). A. H. Ferguson, Chicago.
- Sarcoma with Special Reference to its Treatment by the Mixed Toxins (Northw. Medic., Dec., 1911). C. J. Smith, Pendleton, Ore.
- Simple Serous Cyst of the Kidney (N. Y. Med. Jour., Dec. 2, 1911). R. S. Fowler, New York.
- Special Considerations in Surgical Treatment of the Female Pelvic Organs (Jour. A. M. A., Dec. 9, 1911). H. P. Newman, San Diego, Cal.
- Spina Bifida (Jour. Tenn. S. M. A., Dec., 1911). B. B. Cates, Knoxville, Tenn.
- Sphincter Control of the Bladder after Prostatectomy (Brit. Med. Jour., Nov. 25, 1911). C. Wallace, C. M. Page, London.
- Spondylitis and Some Other Forms of Vertebral Disease, with Especial Reference to Diagnosis and Operative Treatment (Am. Jour. Med. Sc., Dec., 1911). B. Sachs, New York.
- Spontaneous Intra-peritoneal Hemorrhage (Am. Jour. Med. Sc., Dec., 1911). J. W. Churchman, Baltimore.
- Sterilized Animal Membrane, Use of, in Surgery (Am. Jour. Obst., Dec., 1911). R. T. Morris, New York.
- Suprapubic or Perineal Prostatectomy (Am. Jour., Urol., Dec., 1911). A. C. Stokes, Omaha, Neb.
- Surgical Diseases of the Pancreas, Considerations relating to the Pathogenesis and Diagnosis of (An. of Surg., Dec., 1911). L. J. Hammond, Phila.
- Surgical Pathology of the Prostate. A Review of 468 Cases (Surg., Gyn. and Obst., Dec., 1911). L. B. Wilson, B. F. McGrath, Rochester, Minn.
- Three New Plastic Operations on the Nose and Throat (Med. Rec., Nov. 25, 1911). J. E. MacKenty, New York.
- Transplantation of Free Flaps of Fascia (An. of Surg., Dec., 1911). J. S. Davis, Baltimore.
- Tubercular Epididymitis; Analysis of 153 Cases (Bost. Med. and Surg. Jour., Dec. 14, 1911). J. D. Barney, Boston.
- Urethral Calculus (Am. Jour. Dermat., Dec., 1911). H. N. MacKechrie, Chicago.
- Urethral Grafts (Lancet, Nov. 25, 1911). A. Chiasserini.
- Urogenital Infections, Surgical Aspect of, with Special Reference to Kidney Tuberculosis (Ohio S. M. Jour., Dec., 1911). C. E. Barnett, Fort Wayne, Ind.
- Uterovaginal Prolapse in Elderly Women. The Operation of Choice (Jour. A. M. A., Dec. 9, 1911). G. B. Somers, San Francisco.
- Verumontanum, Disease of the (N. Y. Med. Jour., Nov. 26, 1911). E. W. Ruggles, Rochester.
- Vesicovaginal Fistula. Report of Five Cases (Ill. Med. Jour., Dec., 1911). A. Conklin, Chicago.
- Vicious Union of the Shaft of the Femur (Buf. Med. Jour., Dec., 1911). E. L. Bebee, Buffalo.

# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

FEBRUARY, 1912

No. 2

## Original Articles

### SPLENECTOMY FOR CHRONIC MALARIAL POISONING WITH ACUTE INFECTION.

By C. B. KINYON, M.D., Ann Arbor, Mich.

At 5:30 P. M., on August 3d, 1911, I received a telephone message at our summer home in Les Cheneaux Islands from Mrs. Husband of the "Soo," stating that Dr. Husband had started in his auto for Cedarville, thirty-five miles from his home, and wanted me to meet him there and go back with him that night. Accordingly, having packed my "kit," I went in our launch three miles to Cedarville on the mainland, and there met the Doctor about 8 P. M. After a broken auto spring had been repaired, we left Cedarville at 10 P. M. and reached his home at midnight. On the way up the Doctor gave me an account of the case he wished me to see, during his efforts not to run over the rabbits in the road that were blinded by the glare of the headlights. The following is substantially the history:

The patient was a Mrs. M., twenty-six years of age. She had been married five years, but had never been pregnant. Eight years ago, in her native home in Greece, she had had what she and her husband spoke of as a bad cold, and in accordance with the established medical practice of that country several deep slashes were made through the skin over the left side and leaches and cups applied to extract the blood therefrom. It is very probable that this illness was the serious form of malaria so prevalent in the lowlands of Greece. After recovering from this attack she was as well as usual. She married three years later, and two years after her marriage came to this country, going directly to Sault Ste. Marie, Michigan, where they have since resided. Dr. Husband had been their physician ever since their arrival, but Mrs. M. had not needed much medicine, as she considered herself well and strong. But, as

a matter of fact, her husband being a skilled candy maker and the brothers and sisters attending to the store, there was very little work for her to do. In April, 1911, while Dr. Husband was away from home, she was suddenly taken very ill with high fever and severe pain all over. The physician called at that time diagnosed tonsillitis, and treated her accordingly. This was approximately the middle of April. When Dr. Husband returned from his visit, early in May, he was called to see the case and found her suffering from daily chills, alternating with fever, and often, but not every day, followed by sweating. At that time he detected a large, tender mass in the left abdomen, extending well to the median line and from the ribs to the pelvis. This mass was extremely tender. After a careful analysis of the urine, together with a study of all the symptoms, objective and subjective, the Doctor decided that there was an abscess of the left kidney. The urine contained a large amount of albumen and pus, with numerous casts and kidney cells. Operation was advised, but as the patient gradually improved, the family refused until about the middle of June, when she was taken worse, and they finally consented that she be taken to the hospital. On June 16th, Dr. Husband made the usual lumbar incision and evacuated at least a quart of pus. Together with this pus was a good deal of broken down tissue that looked to the eye and felt very much indeed like kidney tissue. Drainage was kept up for several days, and about the third week she left the hospital and soon after this the wound entirely healed. She had no chills or fever after the operation, slept well and gained flesh, until about the first of August. At that time the Doctor was called and found her suffering from a very severe chill, followed by fever with a temperature of over 105. This was followed by sweating, and the pain was more severe than in the former attacks and continued night and day, though more acute at some times than others. The Doctor ascertained at this visit that she had been having chills at intervals for

a few days before, of which he had not been notified. On August 2d he sent her again to the hospital, with the idea of removing the left kidney, as the symptoms were similar, but more severe, than at the previous attack. It was with this idea in mind that the Doctor came for me.

We saw her early on the morning of August 4th, and found her with a very severe congestive chill. Her temperature was not quite 96, the pulse very weak and thready, and her face pinched and blue—a condition indicating a very serious state of affairs, indeed. This was the most severe chill that she had ever had. Upon slight examination we readily found a very large hard mass filling the epigastric and left hypochondriac regions and reaching down to and filling the left side of the pelvis. On a level with the umbilicus this mass was very prominent, extending over to the right linea semilunaris, and was very firmly fixed; in fact, it was absolutely immovable, but not very tender, except at the lower part. This tender area extended to and actually distended the left flank or lumbar region. We remarked at the time that it felt for all the world like a large spleen, but on account of her previous history we were rather inclined to the idea that it was a large tuberculous kidney, although there was the characteristic splenic notch on the right anterior border of the tumor. The extreme lower end of this mass, as already stated, was quite tender and not as hard as the remainder. We at once decided to operate as soon as she reacted from the chill. By noon the temperature was 106 and the reaction well established. We therefore had her prepared for operation and set 2 P. M. as the time. I was ably assisted by Dr. Husband, and Drs. Bennett, Webster and Ennis. Dr. Bennett, who is especially skilled in giving anesthetics, soon had her under the ether.

As anticipated, we found very extensive adhesions about the old line of incision. Therefore a long cut was made to afford plenty of room. The usual line of incision was followed, and it was extended well down on the inner side of the iliac crest and well back to the spine, and close to the twelfth rib. Her condition was so serious that we felt impelled to work very rapidly. The mass was soon reached, and by loosening the firm adhesions on all sides of the original wound with scissors, I was soon able to crowd the hand well up under the ribs, close to the spine, and found the kidney up very high, but easily separated from the mass, and to our surprise the kidney felt normal. We saw at once that we had an enormous spleen to deal with, and the question came to our minds, whether she could stand

the shock of a splenectomy in her present condition, for removal of the spleen is always a serious operation. We at once decided to proceed and take out what we could, or at least locate and empty the abscesses. The next question to solve, and very quickly too, was as to whether the tumor could be removed through this lumbar incision, or whether we must make the usual incision in the left linea semilunaris. But as time was the all essential factor in this case, it was thought best not to change her position, and I simply made a large "Y" incision by extending the lower cut and making another well up along the margin of the ribs toward the cardiac end of the stomach to give sufficient room to work. By the greatest of good fortune I was able to push the peritoneum from the upper end of the spleen on all sides without entering the abdominal cavity. After loosening and separating the peritoneum I succeeded in cutting the gastro-splenic ligament, which anchors the spleen to the stomach, and the lieno-renal ligament. The latter fixes the spleen to the posterior abdominal wall and the left crus of the diaphragm, and also sends some fibers to the kidney and to the suprarenal capsule. The gastro-splenic ligament does not carry very large bloodvessels, but still it is very essential to sever it close to the spleen and not use sufficient force to tear it, as this would be liable to lacerate the bloodvessels and these would retract before they could be secured and the bleeding be rapidly fatal. This anatomical fact made prominent a very formidable proposition in this case, as I was going in from the back rather than from the front, and thus could not well reach the vessels to tie them. These, by the way, come from the coeliac axis. In dealing with the lieno-renal ligament, still more care is required, as the splenic artery runs in this ligament along the upper border of the pancreas. The vein runs a similar course, but is a little lower, and just behind the head of the pancreas it joins the superior mesenteric vein, thereby becoming a part of the portal circulatory system.

After these two ligaments were severed, I found that the mass could not be lifted or tilted out so as to reach the vessels of the pedicle and secure them. What was to be done? Time was precious, and as yet the peritoneal cavity had not been opened. But I saw at once that this mass could not be removed without entering the peritoneal cavity. As the lower end of the mass was much the larger, I at once turned my attention to this, and knowing that there are no large bloodvessels in this part, used considerable force in digging out (for this is literally what was done) this mass from the iliac

fossa, where it was firmly anchored to the bone. I very soon found myself in the peritoneal cavity, and also observed that a large portion of the omentum was fastened to and had a well established circulation with the spleen. In trying to lift this out of the pelvis my fingers penetrated or ruptured the spleen, and over a pint of foul smelling pus poured out. Of course, I was continually forced to clamp arteries, both at this point and up near the stomach and diaphragm, as well as in the omentum. These were tied off at once and dropped back into place. It was now possible to lift the whole mass out sufficiently to grasp the pedicle. Before cutting this I tied off all the vessels that could be reached, using very large sized catgut, as the smaller sizes cut off the vessels and therefore would not control the bleeding. Those which could not be reached and ligated I secured with clamps and then removed the spleen. The remaining vessels of the pedicle and in all parts of the wound were secured, which of course required more ligatures. I was forced to remove a considerable portion of the omentum with the spleen, and the omental vessels were all tied and the omentum dropped back into place. The deeper parts of the wound were now sutured with catgut, which also completely closed the peritoneal cavity. The deeper fasciæ at the upper and lower part of the wound were approximated with catgut. The remaining portion of the wound was firmly packed with gauze, and above and below this packing the walls were coaptated with silkworm gut. The patient was returned to bed forty-five minutes from the time of the first incision, so you can readily see that we did not do much deliberating, but worked with all possible speed.

The patient had but a slight chill the next day, and has had none since. Of course it took several hours for her to rally from the shock, but at the end of twenty-four hours she was fully conscious, and had a fairly good pulse. For the first seventy-two hours there was very copious oozing from the wound, but no bright blood. Some of the packing was taken out on the fourth day, and the remainder of the original packing was removed on the sixth and eighth days and then replaced daily; but less was used each time. The wound closed very rapidly and was firmly healed early in September. She has been well since then, has gained in flesh, and now weighs fifteen pounds more than ever in her life. She has done all of her own work since October 1st. Her kidneys are normal. The blood count is substantially normal in every particular. When first removed the spleen was three inches thick (the

lower end before rupture being four inches thick). It was  $4\frac{1}{4}$  inches wide and  $8\frac{3}{4}$  inches in length. We found a large scar on the convex or outer border of the spleen, opposite the hilum, where the former abscess had been opened in June. We left orders to have the spleen weighed, but this was not done. It surely weighed four pounds. After evacuating several of the abscesses throughout the substance of the spleen and shrinking it in formaldehyde for three days, we were able to crowd it into a two quart Mason fruit jar and bring it home with us. The report of Dr. Warthin, the pathologist at the University of Michigan, is as follows:

"Anemic infarcts of varying stages. Infected abscesses in varying stages. Spleen does not show leukemic changes. Chronic passive congestion. It shows increase of stroma, suggestive of old malarial spleen. Patient had either a malignant endocarditis or pyemia with some other focus."

A letter recently received from Dr. Husband states that she does not and never has to his knowledge suffered from any heart trouble whatever. This, together with the report of the pathologist, leads us to the conclusion that in this case the cause of the infected spleen was the old attack of malaria and the recent severe attack of tonsillitis. The poison entered through the tonsils, and this, together with the malarial toxin, produced the conditions which we found. Had I the space at my disposal I would gladly go more into the details of this case, discuss the general topic of infective conditions of the spleen, and outline the indications for resort to surgery in the treatment of splenic diseases. But suffice it to say, in closing, that it is now pretty well established that a spleen enlarged from leukemia is not to be operated upon as a rule, while enlargements of this organ from the various forms of infection are amenable to surgery.

**Fracture of the Greater Tuberosity of the Humerus.**—Dr. E. Melchior (*Beitr. z. klin. Chir.*, Bd. 75, Hft. 1-2) states that, according to Wieszytko, this variety comprises 3 per cent. of all fractures, 20 per cent. of fractures of the humerus, and 50 per cent. of typical fractures of the upper end of the humerus. Hence its occurrence must be considered more frequent than was at first assumed before the time of x-ray examinations. In view of the frequently indefinite symptoms the existence of this fracture can often only be positively determined in this manner. In the treatment Melchior recommends early mobilization. In 20 cases an ideal result was obtained in 7 and a satisfactory result in 9 cases.

## THE MARGIN OF SAFETY.

By E. J. MELVILLE, M.D., St. Albans, Vt.

In looking over the records of the St. Albans Hospital for the past decade, I have been gratified to find the death rate so low from surgical intervention of all kinds. This showing is especially gratifying when we take into consideration the fact that most of the cases were of the emergency type; that our equipment has been and is still very meager; that the work has been done by general practitioners, and that, lastly, people in a country district are prone, for one reason or another, to allow their surgical lesions to assume desperate proportions before relief is sought.

It is the purpose of this paper to briefly discuss the means by which we may still further lower our mortality record, that "When our summons comes to join that innumerable caravan" we may, departing, leave records in this little hospital, showing that we have lived to some purpose.

To accomplish this object we should begin by closer observance of what Meltzer calls "the factors of safety." To this end we should lose no opportunity of improving our methods of diagnosis, endeavor to shorten the time of operation, handle the tissues as little as possible, and give the smallest amount of anesthetic compatible with the holding of the patient in a state of surgical relaxation.

J. Irving Mears has well said: "To-day the patient requiring surgical treatment enters the hospital, private or public, constructed upon methods the most modern, and with full equipment for perfected work. From the door of the entrance he passes from department to department, submitted in each to critical examination, and finally reclines upon the operating table, a transparent body into which and through which the eye of science has penetrated, revealing the hidden morbid condition, the significance of which the trained intellect of the expert has fathomed." While we may never see our hospital equipped with a modern x-ray apparatus and laboratory, still it is within the realm of possibility that by working as a team instead of singly, we may in the next few years show as low a mortality rate as that of any more favored and larger institution.

Let us always remember that the good results of one member of the staff reflect credit first upon himself, secondly, upon the hospital, and lastly upon every one connected with it. Therefore let us put aside all petty jealousies and work toward a common end.

Realizing that all of our surgical cases of malignant disease of the stomach and intestines have succumbed at the time of or subsequent to operation, is it not within the limits of possibility, that had we accurate methods of diagnosis at hand, surgical interference in the pre-cancerous stage might have had a far different ending? It may further be asked whether it is not our duty, when we consider the gain we have made in the care, prevention and treatment of tuberculosis since we have taken the public on as assistants, to instruct and educate the laity, by word of mouth and through the daily prints, to the effect: "Chronic irritation causes normally an increased production and activity of the epithelial elements, obeying the natural law of compensation; when this process fails to stop,—when compensation is complete, and continues to develop and to invade other tissues—we have cancer. An injury causes activity of the connective-tissue cells for the purpose of repair. When this activity fails to stop at the point necessary for repair and continues riotous production and invasion of the surrounding parts, we have sarcoma." (W. J. Mayo.)

Let us impress upon our patients the necessity of a careful watch for evidence of degeneration in moles, warts, nevi and congenital defects of all kinds on account of the frequency of secondary cancer (Keen). In this way will the patient with the surgical lesion come to operation early enough to guarantee him a better chance of ultimate recovery.

Unfortunately many of our patients are still imbued with the idea, that a hospital is in the same category with the slaughter-house, and are only persuaded to accept hospital treatment when their disease has advanced beyond the domain of surgery. Influenced by the entreaties of their friends and relatives to do something, we have operated. This operation has not only failed to eradicate the disease, but increased our death rate, and was perhaps the means which deterred other friends of the patient, suffering from a similar condition, from applying for surgical relief, and drove them into the net of the quack and the charlatan.

The hall-mark of the master surgeon of the future will not be the number of operations he has done, but the number he has refused to do; not the organs he has removed, but those which he has saved.

The "margin of safety" of our patients would be augmented could we in a given case and at a moment's notice make a blood count in our abdominal cases; make a Wassermann in all bone lesions; demonstrate the plasmodium in the blood or obtain

a positive Widal reaction before we curette our puerperal cases; get a knowledge from a frozen section of the pathology while yet our patient is on the operating table; use normal blood-serum preliminary to operation on our hemorrhagic and jaundiced cases; employ the direct transfusion of blood in suitable cases; cystoscope the bladder, catheterize the ureters, or make any of the delicate tests for renal efficiency; make use of the x-ray, the esophagoscope, the bronchoscope, the electro-cardiograph—in short, of all the scientific apparatus which adds so much to the results of the surgery of to-day.

Undoubtedly the laboratory diagnostician and the clinician are working hand in hand, yet I believe there is too much reliance placed upon instruments of scientific precision and laboratory diagnosis and that many of the tests are not confirmed by the surgical findings. Is it not possible that the significance of the pulse was better interpreted before the advent of the thermometer?

Undoubtedly healthy organs are so constructed that they are prepared to stand greater strain than the usual routine of daily life and the ordinary operation under anesthesia, but when we come to the extraordinary operation in a handicapped individual, we must endeavor to exercise all precautions known to science, in order to give this patient as great a "margin of safety" as possible.

"The margin of safety" in the ordinary patient and in the handicapped subject may best be discussed under three headings, namely:

1. The pre-operative treatment.
2. The operation itself.
3. The post-operative treatment.

It is generally conceded by the leading surgeons of the present day, that the majority of patients suffering from a surgical affection do better ultimately if operated on first and their general health looked after during convalescence, but persons suffering from chronic alcoholism, diabetes, enlarged prostate, cardiac lesions with poor compensation, renal inefficiency, anemia from acute hemorrhage, or from chronic disease, overwork, toxemia, shock from traumatism are given a greater margin of safety if subjected to a careful preliminary pre-operative treatment.

It is not within the limits of this paper, nor has the writer the apparatus, the technical skill or knowledge necessary to discuss intelligently the merits or demerits of the work done in the past few years in diagnosing exact lesions in essential organs, hitherto inaccessible to the art of surgery; yet an article of this kind would not be com-

plete without a word of commendation to the men whose labor, genius and mechanical skill has brought to the door of the humblest country surgeon such marvellous instruments of scientific precision.

Regarding the operation itself, we should aim at a removal of the pathological condition which causes the symptoms in the way best fitted to eliminate, as far as possible, all factors which diminish "the margin of safety" of the patient.

Crile, in his classical address before the Vermont State Medical Society on "Anoci-association," taught us the wisdom of keeping from the patient the knowledge of the time of his operation and of all sights and sounds of the operating room. The Mayos, on the other hand, teach that an air of mystery surrounding the time set for operation and the fact that the patient is not allowed to see the operating room lead him to believe that his operation is a very serious affair or that the operating room is such a horrible sight that he cannot be taken there until asleep. This increases the element of fear and defeats the very purpose for which such policy was mainly intended.

The majority of patients express a desire to see the operating room, and the sight of it and the observation of so much care and attention on the part of everybody connected with it inspire him with confidence; consequently he approaches his operation with the feeling that nothing is neglected that might add to his safety. Again many wish the attendance of their friends or spiritual adviser upon the morning of operation, to give them additional courage.

As to the practical side of Crile's theory I have nothing to say, as my knowledge of it was gained only from his many valuable contributions to the medical press, but a three weeks' observance of the Mayo plan convinced me that the work of this clinic has done much in removing from the minds of the laity the horror of an operation.

It may seem strange, at first thought, that methods so diametrically opposed should produce equally good results, and we may well wonder that a world-renowned surgeon gives his patient several preparatory scrubbings, uses much catharsis and starvation preliminary and subsequent to operation, administers opiates for pain, keeps his patients in bed three weeks after every laparotomy, sends them out of the hospital well trussed up with a tight bandage, and attributes his wonderful success to his attention to details; while, on the other hand, another equally famous surgeon gives the skin no preparation until the patient is on the table,

then dry shaves, scrubs with benzine and paints with two coats of iodine, allows his patient to eat his ordinary light supper the evening prior to operation, permits any diet subsequent to its performance that is desired, employs no cathartic for forty-eight hours prior to operation and only an enema to empty the bowel on the morning it is done, gives no post-operative cathartic, passes the rectal tube for gas pains, washes the stomach every four hours for nausea when required, forces his patients to get out of bed in two days and out of the hospital in five days without a binder, and still gets ideal results. The only explanation of this apparent paradox is that any method in the hands of the master works well.

Undoubtedly the greater the confidence of the patient in the surgeon in attendance, the less will be his fear and anxiety and there is no greater art in the field of surgery than that which has for its purpose the elimination of fear.

In the case of some extremely sensitive patients it would be better to induce the anesthesia in their own room or in one adjoining the operation room, but speaking generally, much time is saved and less anesthetic is employed when the patient goes to sleep on the table, and I believe if this argument was used few, if any, would object to being etherized there.

Many surgeons give a hypodermic of morphine and atropine in all their cases preliminary to general anesthesia, while others resort to it only in their thyroid patients. The writer has observed a few cases where such hypodermics were blamed for bad respiratory action during anesthesia, for the failure of the patient to wake up promptly from the anesthetic, and for a continuance of shock.

The writer has advocated for a number of years the necessity of having a trained anesthetist attached to every hospital, but it was not until a recent visit to the Western clinics, that he realized the vast difference between the etherizing of internes and that of skilled anesthetists, who are paid well for their work and who are kept on year after year, thus becoming more and more expert in this important specialty.

The anesthetist should be chosen as such for ability only. He should I believe be a physician, as he may have to decide at a moment's notice whether to give a hypodermic of nitroglycerin or one of strychnine and atropine, according to whether the patient is "going bad" from hypertension or hypotension. He should know that the patient should be surgically relaxed, and yet be cognizant of the fact that total muscular relaxation will involve the

diaphragm, seriously impair respiration, and if continued cause respiratory depression. He should understand that it is an analgesic rather than an anesthetic condition that appeals to both surgeon and patient, and many times the latter will be able to carry on quite a conversation, showing a functioning mentality and still be relaxed and insensible to pain.

The skilled anesthetist always errs on the side of safety, and in his hands it is no uncommon sight to see a patient struggle occasionally while the cutting is being done or complain of the last stitches, but the breathing is thoracic, not abdominal, the bowels are not thrown into the field at each breath, the face is not livid, the jaws not locked nor the breathing stertorous as is so often the case when the patient is getting too much ether and not enough air.

We must also condemn the man who brings his patient to the table in a trance-like condition and keeps him thus during a long operation. Nine times out of ten that patient is drenched with the anesthetic, and his margin of safety, during and subsequent to operation, very much diminished.

While ether is the anesthetic of choice with many, still some eminent surgeons, notably Crile of Cleveland and Bloodgood of Baltimore, favor nitrous-oxid-oxygen, and employ it extensively in their clinics. The Mayos, after using nitrous-oxid-oxygen in 1,000 consecutive cases, condemn it in no uncertain terms as being expensive, cumbersome, difficult of manipulation, inefficient in deep abdominal work and more dangerous than ether.

If a patient died under ether a few years ago, we shook our heads unless the can bore the label of a certain firm. However, since most of the large clinics are using other brands of ether, we are beginning to see the futility of paying a large sum extra for the name.

A great change has come about in the feeding of the patient prior to operation. All authorities agree that the stomach should be given sufficient time to empty itself before general narcosis, yet Hunter has proven beyond a reasonable doubt that the starvation of a patient for many hours prior to operation is very deleterious to his welfare. He shows that vomiting is not of nervous origin nor caused by food remnants, but is a toxic acidosis due chiefly to interference with the liver by the ether or chloroform. He advises allowing the patient a full diet until the night previous, then gruels of barley or rice up to within two or three hours of operation. These gruels permit the liver to store



up glycogen, thus increasing the combustion process in that organ.

The inhaler used at most of the clinics at present is the Mayo-Ochsner, which is covered with stockinette and boiled after each operation, that the inspired mucus may not become infected. For the same reason the nose, mouth and throat should receive careful attention and be placed in as sterile a condition as possible, in order that no foreign particles may be inspired while the patient is unconscious or semi-conscious.

The drop method of giving ether is best used by cutting out the top of the can and a wedge-shaped piece out of the cork, into which opening is placed a narrow strip of gauze. Tilting of the can will then control the flow. Making a pinhole in the can and allowing the ether to be thrown on the inhaler in a fine stream is not the drop method.

It is usually taught that silence in the etherizing room while the patient is being narcotized is essential. This I believe militates against a rapid narcosis, as the unnatural silence may lead the patient to believe that his case must be desperate indeed. The family physician or the anesthetist should give the patient what is known as a moral anesthesia, e. g., encouraging him to sleep and talking to him gently, telling him of the many, many persons who take ether, etc., while the surgeon and assistants go about their work of preparation as if nothing unusual was occurring.

Chloroform, although unpopular for general narcosis in the Northern States, is the anesthetic of choice in cases of arterial spasm, where the heart is hypertrophied to meet the strain. In these cases the blood pressure is high, and ether or nitrous-oxid-oxygen by increasing arterial tension might cause rupture of a cerebral bloodvessel. In hot climates chloroform is used almost exclusively on account of the high volatility of ether.

In operations about the face and brain anesthesia is continued by chloroform dropped on a piece of gauze and held to the patient's nose on a pair of long handled sterile forceps; although here again Crile has shown his resourcefulness by an invention whereby the ether may be sprayed into tubes inserted into the nostrils and held there by loose packings of gauze.

In diseases affecting the efficiency of the kidneys, lungs or liver, I believe chloroform is safer than ether, yet we must admit that volume for volume the former is more irritating to those organs than the latter. Chloroform kills in the open, ether stabs in the dark, the patient dying of anuria, pneumonia or acetonuria days, possibly weeks, after

operation. The writer is aware that the foregoing is contrary to modern views, but in more than a score of years, using and abusing chloroform, he has yet to see a death that could be attributed to its intelligent administration. When the therapeutics of chloroform narcosis is as carefully taught in our clinics as is that of ether, then will this useful drug come again into its own.

Contrary to the usual teachings, the table is placed in the reversed Trendelenburg position in operations upon the thyroid, for the convenience of the operator and on account of the fact that a small amount of anesthetic only is required when the brain is anemic.

The trained anesthetist should have on hand and be well grounded in the physiological action of the different respiratory and cardiac stimulants, and should be the only one who should say when their exhibition is indicated. He should be provided with solutions to use intravenously where indicated and understand how to practice artificial respiration without disturbing the field of operation.

The preparation of the operative field, the gowns, instruments, the surgeon and his assistants is becoming simpler every day, and the writer is of the opinion that in a few years the only antiseptics used in the modern operation will be fresh air, heat, sterile soap and water.

In watching the master surgeons at work one is impressed by the fact that their apparent speed is not made so much by doing the essential things rapidly as by leaving undone the non-essential things.

As the danger of infection is in direct proportion to the number of assistants present and to the number of instruments used we should aim to dispense with as many as possible.

Since we have learned that tying the stitches too tightly shuts off all circulation, causing sloughing, and pressure necrosis, secondary hemorrhage is rare.

Unless "the margin of safety" is large we should not try to do too much at one operation. Better have the patient come back the second or even the third time than to take any unnecessary risk.

The after-treatment of each case is a law unto itself, but, generally speaking, if the patient receives careful preparation, as little ether as possible, and the time of operation and tissue handling are reduced to a minimum, very little post-operative interference is needed.

In discussing the death-rate from operative interference, let us not forget to reckon the morbidity of the patient who recovered from the direct effects

of operation, but where it did not fulfill the purpose for which it was mainly intended. How many of our discharged cases have died outside the hospital from a rapid recurrence of the disease for which they were operated on? How many have come to us for operation and then gone to the other doctor to complain? Has that neurasthenic, whose psychical diseases disappeared subsequent to operation remained well, or has she slid again into the "slough of despond," thus injuring the Cause? Surgery is too serious an agent to be used as a means of psychotherapeutics.

In our cases that have died subsequent to operation, let us ask ourselves, could we have saved life by employing different methods? Had we desisted from administering chloroform, during the struggles and stormy breathing of our patient, could we have gauged more accurately the amount of anesthetic we were using, and thus saved this life? Had we insisted upon those plethoric drinking a gallon of water the day prior to operation, thus diminishing the proportion of fibrin in the blood, would we have avoided those cases of pulmonary embolism? Had I done a Caesarean with competent advisers and assistants, instead of a craniotomy, would I have avoided killing the babe with the eventual death of the mother from a combination of exsanguination, shock and sepsis? Had you made your diagnosis early in ruptured ectopic pregnancy, would you have saved your patient? Could we have foreseen, before general peritonitis developed, that the rigid abdomen covered a torn intestine, would an immediate section and repair of the rent have gained a victory? Have we ever removed generative organs and thereby condemned some potential mother to a barren life or to a living death from disturbed mentality? Had we waited for reaction to set in before we did those amputations, would we have given such patients a better chance for life? Had we drained that tubal abscess through the posterior fornix, instead of through the abdominal wall, would we have found that well of pus in our postmortem examination? Would non-operative treatment, consisting of Fowler's position, Murphy's proctoclysis, rectal feeding and gastric lavage, or, in other words, would Ochsner's treatment have saved those purulent fulminating cases of appendicitis? Would it not have been better for the cause of surgery had we refused to operate on all cases in extremis? Is it better to be blamed for over-eagerness by the laity or to be called a coward by your own conscience? These are the questions that disturb our slumbers and pre-

vent nature from knitting up the raveled sleeve of care and, like Banquo's ghost, will not down.

Have we profited by our failures or do we suffer from that most common affection of the occasional surgeon, elephantiasis cerebri, the cardinal symptom of which is the delusion "that the king can do no wrong"?

In conclusion let us not forget that the medical immortal of the future will not be the internist whose marvellous exactitude points out the flaw in the human mechanism, nor the surgeon whose skill adjusts the delicate machinery to a perfect co-ordination, but the self-abnegating scientist, who will strike the loathsome fetters of malignant disease from frail Humanity by his great discoveries in preventive medicine.

### **SOME WIDELY DIVERGENT VIEWS ANENT SPECIFIC URETHRORRHEA.**

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The writer wishes to disclaim any pretense to the possession of unusual knowledge or extraordinary skill in any branch of medical practice, and particularly does he not claim any distinctive ability or especial erudition in the department of urology. However, no apology is offered for anything in this dissertation which may appear hypercritical relating to an affection said to have been first described by a Chinese Emperor over four thousand years ago (Hoangty, about 2637 B. C.), and which with its complications and sequelæ has probably been written and talked about more extensively than any other single malady afflicting the *genus homo*.

The reason for utilizing the designation "specific urethrorrhea" in the superscription is that the writer does not recognize as being correct the terms gonorrhea, blennorrhea, and urethritis, which are almost universally and interchangeably employed by medical practitioners throughout the world, for the reasons that:

(a) Gonorrhea simply signifies a "flow of semen," presumably from the meatus urinarius (or urethra) of the human being, but the word does not necessarily so indicate;

(b) Blennorrhea merely denotes a "flow of mucus" from (mucous) glands, but has no especial reference to the urethra or any other organ or structure of the body;

(c) Urethritis can only mean an inflammation, which may be either acute, subacute, or chronic, of the anatomic structure to which the word owes its origin.

Literally and essentially the term "urethrorrhea" signifies any flow or discharge from the urethra—it may be of mucus, semen, pus, or other material—and to adequately describe a discharge of pathogenic and specific origin, the addition of "specific" seems imperative. Therefore, the writer believes specific urethrorrhea is preferable to any designation hitherto suggested to represent the evident meaning intended by the words gonorrhea and urethritis as commonly employed. And in the female, if the vagina as well as the urethra be implicated, the proper appellation would naturally be specific vagino-urethrorrhea.

With this explanation let it be understood that the words gonorrhea and urethritis as utilized herein are merely to preserve in some degree the original diction of the authors whose contributions are cited, not that the writer for a moment admits the correctness of either term. However, as elsewhere stated (*International Clinics*), common usage has caused general acceptance of the terms gonorrhea and urethritis as being permissible, even if technically inexpressive and totally incorrect.

Much has recently been written anent the tremendous advancing strides made in every branch of medical science during the last few decades, due to the increase of medical specialism and multiplicity of (so-called) specialists, the discovery and exploitation of new remedies, vaccine- and sero-therapy; likewise the extraordinary multitudinous benefits which have accrued to humanity because of vastly improved methods of diagnostic and operative technic, etc. However, despite all these reputed developments, discoveries and improvements, there occasionally appear in medical print under the names of prominent authors statements which are so absurd, so ridiculous, that even a novice could hardly fail in detecting the obvious errors, and certainly no experienced practitioner could think of permitting them to pass entirely unobserved; e. g., it is said that so great a genito-urinary authority as Keyes in one of his books recommends an extended trip across the ocean, or a sojourn in the mountains, for the cure of chronic, intractable, so-called gonorrhea, the natural inference being that change of climate and scenery will have a beneficial influence upon the disease, i. e., will eliminate the ubiquitous germ of Neisser from the system.<sup>1</sup> And not many months ago a prominent Southern medical gentleman, chairman of the surgical section of a large medical society, made the following astounding assertion: "I believe gonorrhea is a self-limited disease, and that if we just give it time it will get well of its own

accord. The reason the disease continues is because patients do not take care of themselves in the matter of sexual intercourse, and if you put these men to bed, they will get well of themselves in a limited time."<sup>2</sup> Another author insists that improper injections used by ignorant hands constitute the chief cause of prolonged and complicated attacks of gonorrhea, and reports several cases at French Lick Springs (Indiana) which recovered without any local treatment, "by simply observing rules as to diet and habits," and drinking copiously from what is known as the Bowles Spring, the water of which has a powerful diuretic action!<sup>3</sup>

Statements like the foregoing, even though they may emanate from presumably educated and prominent medical gentlemen, certainly remind one of the Dark Ages in Medicine; they carry one back even beyond the period when specific urethrorrhea was considered a "flow of semen," or a "flow of mucus" from the urethra, indeed to the "running issue out of the flesh" mentioned in ancient biblical history!

In the light of present scientific knowledge, it would be difficult to imagine anything more absurd than the views accredited to the authors mentioned. If it be true that specific urethrorrhea is strictly self-limited, i. e., a malady which will get well of its own accord in a limited time, or if not really self-limited can be cured by change of climate or the ingestion of large quantities of mineral water, then the queries seem pertinent:

(a) Why the necessity for the most erudite bacteriologists in the world having devoted years of investigation and painstaking study to detection and isolation of the *fons et origo mali*?

(b) Why the necessity for numerous prominent observers having devoted even a greater number of years in attempted perfection of rational and effective means and methods of curative treatment?

(c) Why the necessity for the multitude of textbooks, elaborate monographs and theses which have been written anent the disease?

(d) Why do some of the most learned and erudite medical observers in the world seriously question the curability of the disorder in either the male or female?

(e) Why do serious and even fatal complications sometimes accompany or follow in the wake of the disease if it be so simple and easily curable?

(f) Why do many of the foremost surgeons and gynecologists in the world admit that from 50 to 90 per cent. of all pelvic inflammations in the female are due to specific (venereal) infection?

(g) Why, also, do the same authorities admit that 50 per cent. of all sterility in both male and female is due to the disorder under consideration?

(h) Why the necessity for suggesting the establishment, equipment and maintenance of special hospitals in which venereal patients may be properly isolated and adequately treated?

(i) Why, indeed, is the institution of any treatment essential? Why not keep the venereal patient in bed (as the gentleman from the Southland recommends) until such time as the disease is dissipated by limitation?

(j) Or (according to Livermore), as suggested by Keyes, why not send such patients on an extended sea voyage, or prescribe a prolonged trip to the mountains, if the Neisser germ can be thereby eliminated and a cure thus effected?

(k) Finally, if nothing else than copious ingestion of diuretic waters be required, why not induce the proprietors of health resorts (springs) to sufficiently enlarge their institutions and increase their facilities to accommodate the thousands of venereal patients that they may be drenched with diuretic waters until cured?

If the gentlemen quoted be not totally erroneous in their premises, how is it possible to in any measure reconcile their views and make them agree with evidence deduced from the experience of nearly every other medical authority in Christendom whose qualifications entitle him to express an intelligent opinion upon the subject of venereal disease? To further emphasize and illustrate the absurdity of the ancient ideas referred to concerning specific urethrorrhea, it may not be inappropriate to interpolate, without personal comment, the recorded views of a few other observers.

"Gonorrhea will never cure itself, and when once it has developed, God only knows when it is going to stop. I have a man as a patient who had gonorrhea twenty-six years ago, and for twenty-four years he has been a straight, upright, decent man. He has never been outside of his household during that time for the purpose of sexual intercourse, and I find active gonococci in the prostatic secretion to-day!"

Gonorrheal vaginitis is and ever has been the *bête noir* of the gynecologist. Rebellious to treatment, the pharmacopœia has been ransacked to furnish remedies to control the disease, and not with the best of success.

Not many years ago it was the prevailing popular and professional opinion that gonorrhea in both male and female was a trivial affair. To-day promi-

nent gynecologists hold the disorder as the predominant cause of pelvic trouble, many genito-urinary specialists state that it is scarcely curable unless treated early, ophthalmologists refer to it as an important cause of blindness, sociologists treat of it as a prime cause of sterility, and even medical men lecturing to students on moral topics set it forth as an incurable, often fatal, and always terrible scourge of civilization, more to be dreaded than syphilis.

Gonorrhea is much more serious in women, not on account of the severity of the immediate symptoms but its sequelæ and the far-reaching havoc it may work. The almighty gonococcus has a tortoise-like manner of working its way into the uterus where it may do comparatively little harm, but it migrates into the tubes and ovaries, and when these are in a state of suppuration one is always inclined to think of a specific origin. The majority of laparotomies in women are made necessary by invasion of the little gonococcus. Some of our authorities tell us that gonorrhea is absolutely incurable, and the late protean manifestations thereof certainly lend considerable favor to that opinion. Gynecologists state that a large percentage of their work in the female pelvis is due to the havoc of gonorrhea innocently contracted.

Gonorrhea and its complications form 90 per cent. of venereal diseases. Medical statistics rate over 85 per cent. of all adult males as present or past sufferers from the disorder. Gonorrhea is the cause of 60 per cent. of all uterine and sexual disorders in women. Very few women (or men either) of loose sexual morals escape gonorrheal infection. Gonorrhea is always communicable, and each attack renders a person more liable to future attacks. It causes 80 per cent. of infantile blindness and 20 per cent. of all blindness. It often gives rise to impotence and frequently deprives its victim of his ability to beget children. Gonorrheal germs have been known to invade every part of the body except the liver, spleen and intestinal tract. Gonococci have been known to remain for years in the human body without giving evidence of their presence, and yet retain their power of infecting others.

Cecil believes gonorrhea is doing more harm to the people at large than cholera. It ranks high in the list of fatal diseases. This matter has received the attention of gynecologists, and most of them assert that a large percentage of pelvic diseases in the female is due either to gonorrheal or puerperal infection. If half the examples of pyosalpinx be due to gonorrhea, that means a large number of serious

cases, many of which end fatally even when treated by the most skillful surgeons." Gonorrhea is almost an incurable disease in the female."

Noeggerath considers specific urethritis in the male incurable. He believes that when apparently cured it really has only become latent, and the wife is almost always infected. She may thus acquire an inflammation of the mucous membrane extending from the vagina to the ovaries. Tait claims that acute specific urethritis is not to be unhesitatingly discriminated, and is certain that hundreds if not thousands of instances occur annually in which serious and even fatal mischief is done thereby, the victims of which are entirely unconscious of the primary infection. Some of the best authorities who deal with specific urethritis among men say it is never really cured. Modern gynecologists have unearthed the conclusion that specific urethritis is a fatal and terrible scourge to women. Lydston declares it needs but a casual survey of its morbid possibilities to convince one that it is a serious affection. It is an undeniable fact that specific urethritis is the most dangerous of the venereal diseases, for through the medium of its sequelæ and complications it is the cause of more deaths than can be justly attributed to the direct or indirect influence of syphilis."

Neisser admits that in woman the infection may invade the entire internal genitals, the uterus, tubes and ovaries, and that peritonitis may result. Such conditions often endanger life and necessitate removal of the uterine appendages. And undoubtedly 50 per cent. of all childless marriages, and limiting of the number of children in families, are due to gonorrhea and its sequelæ."

Hyde and Montgomery claim gonorrhea and its complications have a greater mortality than syphilis, and Moyer declares that since the gonococcus has been isolated and cultivated it has been found that general infections are frequently caused thereby. Pleurisy, meningitis, myocarditis and peritonitis (and gonococcemia?) have all been identified; so gonorrhea is not purely a local disorder. According to twenty-four prominent American and foreign gynecologists 41 per cent. of pelvic inflammations in the female are traceable to supposedly cured gonorrhea in the male, and sterility is produced in 42 per cent. Hirst and Robb believe sterility is the rule where infection has occurred; Hamilton and Kreutzmann say sterility results in every case where the ovaries and tubes are attacked, and Czerny claims 50 per cent. of sterility in the female is due to the husband's gonorrhea."

The question when is gonorrhea cured cannot be answered. It will probably never be known when a man whose urethra has become infected with this disease ceases to be a dangerous person to those with whom he may have sexual relations. Many patients recover, but there are others who do not, and some of the latter certainly do infect their wives. Noeggerath stated (in 1872) that 90 per cent. of men having gonorrhea infected their wives, and that men so infected never recovered."

Sanger claims that where the infection has long since been extinguished, there are left in the tissues numerous characteristics, even specific signs, which he terms "residual." The residual signs may affect the vulva, urethra, vagina, uterus, adnexa, pelvic peritoneum, the parametrium, and rectum. He ascribes vulvitis, adenitis, urethritis, endometritis, metro-endometritis, salpingitis, and nearly all the inflammatory diseases of the vagino-uterine tract as due to residual gonorrhea."

Tait admits that a man really never gets cured of gonorrhea. Under stimulus of wine or women it will come back and be infective. From the enormous number of cases of damaged uterine appendages that have come under his care in the young married women who have remained sterile he is almost disposed to believe it unjustifiable for a man who has ever suffered from this disease to enter the married state."

Gynecologists regard the gonococcus as the cause of urethritis, cystitis, ureteritis, pyelitis, and destructive kidney lesions. Through invasions by way of the genital canal vulvitis, vaginitis, endometritis, salpingitis occur, and their sequelæ are found in hydrosalpinx, pyosalpinx, ovaritis and pelvic peritonitis. Through invasion via the blood, the joints and bloodvessels are affected, life is threatened and health impaired, all causing the gynecologist to consider gonorrhea a more serious malady than syphilis. The latter may be cured, but gonorrhea can not."

The fact that men lose their lives, their eyes and their minds from gonorrhea should suffice to stamp the disease as certainly far worse than a mere cold; but that innocent women and children are daily sacrificed to this microscopic Juggernaut makes it the most dangerous disease with which humanity has to contend."

Investigating gonorrhea and sterility Benzler followed the histories of three thousand soldiers who were infected during service. Of 474 marriages of those infected with simple gonorrhea, he found 10 per cent. without children after three years of married life; of 111 marriages of men who had

epididymitis (one side) 23.4 per cent. were sterile; of 24 marriages of men who had double epididymitis 41.7 per cent. had no children, and 52.5 per cent. had only one child. Unfortunately, says the author, sterility is only one of the many evils following gonorrhea.<sup>20</sup> However, Wilson says that while gonorrhea does frequently prevent conception, he does not believe it is by any means a universal rule. If Noeggerath's statements were literally true, sterile women and fruitless marriages would be far more common, and increase of the race would be markedly lessened, for there is a surprisingly large percentage of men, judging from his experience, who if they confessed the truth, have suffered at some time with gonorrhea.<sup>21</sup>

Christian believes, with Taylor, that gonorrhea may be, and often is, one of the most formidable diseases that can attack man.<sup>22</sup> It is unsafe for a physician to promise a cure under ten to sixteen weeks, and even then complications may occur which will still further lengthen the disease to many months.<sup>23</sup> The prognosis as to the time when a cure may be expected must always be guarded.<sup>24</sup>

The prevalence of gonorrhea and its frightful ravages are brought to the notice of the gynecologist almost daily. The gonococcus infects not only the vulva, urethra, bladder, rectum, vagina and uterus, but also the Fallopian tubes, ovaries and pelvic peritoneum, and may lie dormant for years in many of the tissues, notably the vulvo-vaginal, Skene's urethral, cervical and utricular glands, ready to infect or reinfect any healthy mucous membrane. Undoubtedly the prime cause of sterility in both man and woman is the gonococcus.<sup>25</sup>

According to Bumm gonococci may remain virulent in the genital tract from five to ten years.<sup>26</sup> And Sinclair says every woman who has suffered from gonorrheal peritonitis is barren.<sup>27</sup>

Strange as it may seem, there still exists considerable confusion and disagreement concerning the etiology of specific urethrorrhea. When the germ of Neisser was isolated and described it was presumed the last word in this direction had been said, but clinically this does not appear to have proven true. While the majority of observers admit the specificity of the Neisser germ, there remain not a few prominent practitioners who doubt *in toto* what they denominate as the "bug" theory, i. e., that the so-called gonococcus is the essential *fons et origo mali*, on the basis that they have never seen the "bug," that they treated hundreds of cases of gonorrhea long before bacteriology (bug theory) had attained the present stage of development and perfection, and effected as many permanent cures

as the erudite specialist of to-day can with all his improved methods and theories, that they never owned a microscope and did not require one to make a satisfactory diagnosis, that if they were to see the Neisser germ with the naked eye they would doubt their visual acuity, and if they observed it through the lens they would doubt the accuracy of the microscope! Even so eminent an authority as Lydston, who usually approaches questions of this kind with unusually sound sense, is accredited with the statement that he believed gonorrhea like chancre was really a filth disease continually arising *de novo* in women.<sup>28</sup> Authors too numerous to mention assert that the germ of Neisser is the result rather than the cause of the disease, and even if present originally it represents only one of the etiological factors, that the streptococcus and other organisms are invariably found in every case of specific urethrorrhea. *Per contra*, there is the ubiquitous bacteriological expert (so-called) who attempts to defend the dictum that every malady which afflicts humankind—from corns to hemorrhoids, and from freckles to bunions—has its origin in a pathogenic germ! The views of the various authors concerning the never-ending etiological and bacteriological controversy are so numerous and diversified that to attempt to enumerate and classify them would be a hopeless task.

While, as already shown, specific urethrorrhea has been known and studied for over four thousand years, there is unfortunately still no consensus concerning its most rational and appropriate treatment. Nearly every drug in the pharmacopœia has at some time or other been recommended and employed internally or locally, and a remedy which is apparently successful in one instance may have no effect in another. Only one feature in connection with treatment will be considered in detail, viz., the so-called abortive method.

O'Neil claims that methylene blue administered internally will cure gonorrhea in from four to seven days. To the diplococcus, which is the specific cause of the disease, it is especially fatal. The pyogenic bacteria which make gonorrhea a mixed infection succumb promptly to this germicide.<sup>29</sup>

In the abortive treatment Englebreth employs silver nitrate solution (1 to 200), practicing copious lavage of the anterior urethra. Twenty-four hours later he makes a second lavage (1 to 500). This completes the active measures. In four to six days the urethra recovers from the irritating effects of the application.<sup>30</sup>

Lyons reports over four hundred cases of gonorrhea treated by his so-called abortive method, 95

per cent. being cured in six days, many in twenty-four hours! The author remarks: "When I say that the disease was cured in twenty-four hours, I mean that no gonococci were seen in the secretion at and after that time. It takes from five to ten days for the urethra to be restored to its normal condition." He injects a 4 per cent. solution of silver nitrate into the urethra to be retained about three minutes. If germs are still found in twenty-four hours, another injection of a 2 per cent. solution is given, and twenty-four hours thereafter a 1 per cent. solution is injected if necessary. If the disease be not then aborted, or as the author says, "if the gonococci have not entirely disappeared by this time," it is useless to proceed further, the abortive treatment is abandoned and the symptomatic plan pursued.<sup>21</sup>

Hutchinson always uses abortive measures and has never observed any ill consequences. Complications are rare. He claims that if the patient be well purged there is no risk in the abortive treatment from the day the case comes under observation, and that he would as soon think of delaying use of local measures in gonorrhea as he would in purulent ophthalmia.<sup>22</sup>

Routier, in the acute stage of gonorrhea, does nothing beyond having the patient wear a suspensory bandage and take an alkaline bath every three days for ten days.<sup>23</sup>

On the other hand, Casper advises against all abortive treatment as not accomplishing the desired effect but favoring the occurrence of complications. The symptoms of the disease do not appear until some days after the gonococci have penetrated the urethral mucous membranè. The introduction of instruments into the urethra during the acute stage—so long as a florid, purulent discharge is still taking place—is contra-indicated, as are also injections that induce irritation of the urethra or aggravate existing inflammation.<sup>24</sup>

While the elaborate paper of Dowd contains nothing particularly new, his conclusions are of considerable importance:

(a) Ninety-nine per cent. of patients can be cured.

(b) Examine the urine visually every time you see the patient;

(c) Soothe his delicate mucous membrane by very weak solutions, rather than irritate it by injections which, if used, certainly do;

(d) Never use an instrument except the catheter until the urine contains only shreds floating in a clear liquid;

(e) Never discharge a case as cured until the

urine is the same as before he had the trouble, viz., clean; or, if one or two small shreds be present, examine carefully to see they contain no pus or gonococci; you may save some woman's tubes or ovaries and unspeakable suffering;

(f) Don't use the electric light to impress the patient with your greatness. If not called for, it is a positive damage;

(g) Silver nitrate will not cure every case, but it will cure 96 per cent. and is the remedy *par excellence*;

(h) Adhere to cleanliness, and by this I mean sterilization, for germs are the cause of inflammation, and the introduction of unclean catheters, sounds and the like will cause the same.<sup>25</sup>

There is also considerable difference of opinion on the question of immunity to specific urethrorrhea. So far as the writer can ascertain from the records Bloom was the first to suggest that a previous cured attack conferred a certain degree of immunity on the patient. However, even before the famous Ricord's time it was known to occasionally happen that following deposition of the then so-called specific virus in the vagina of the female, the next male to have intercourse with her might contract the disease, whereas his successor *in coitu* would escape! After citing several examples to substantiate his contentions, which may or may not be correct, Bloom concludes:

(a) That a previous cured case of gonorrhea gives a certain amount of immunity to a patient;

(b) That the older the man, the less his liability to gonorrhea;

(c) That after the age of thirty a man who has had gonorrhea may in many cases have sexual connection with safety with women who would be certain to communicate it to younger men whose urethræ have not been rendered to some degree immune by previous gonorrhea.<sup>26</sup>

Jadassohn does not believe in the theory of immunity, but remarks that the liability of different persons to contract gonorrhea varies to a remarkable extent. In a review of his paper the editor of *Treatment* (London) says some persons always contract urethritis from impure connection, while others are less vulnerable and escape. There is doubtless no general immunity of the system rendering one organ immune to the discharge from another organ affected with gonorrhea, but that a certain degree of immunity is conferred on the mucous membrane of the urethra is in accordance with clinical experience. A first attack of gonorrhea is nearly always more severe than subsequent attacks, and as a rule the later infections diminish



in severity. This would seem to be explained to a great extent by a certain degree of immunity being acquired by the mucous membrane, although of course there are other factors, such as the degree of virulence of the source of infection, and also the idiosyncrasy of the patient."

On the other hand, Schall claims it is well-known that persons giving a history of former gonorrhea have a certain predisposition for this affection, and during the course of different inflammations of the urethra discharges are clinically very difficult to distinguish from the sensual drop sometimes observed." And another writer asserts that one attack renders a person thereafter more likely to contract the disease." Valentine cites evidence to prove that however long a man may escape gonorrhea, his immunity is only fancied and he may fall a victim to the disease at any time while he continues a life of immorality. He concludes that there is no real immunity."

The scope and intent of this dissertation not permitting further discussion of the etiology, symptomatology or treatment of specific urethrorrhea, the writer reserves the right of expressing his personal opinions thereon *dextro tempore*. However, it may be said *en passant* that his views are in practical accord with the majority, i. e., that specific urethrorrhea, instead of being, as Keyes, Martin, et al., would have one believe, a simple self-limited local affection, is an exceedingly grave disorder in both male and female, fraught with danger in the acute stage, doubtfully curable after having become chronic, and sometimes accompanied or followed by complications and sequelæ which constitute a serious menace to life.

#### LITERATURE.

- <sup>1</sup> Keyes: Quoted by Livermore, Southern Medical Journal, Vol. IV, No. 4, May, 1911.
- <sup>2</sup> Martin: Southern Medical Journal, Vol. IV, No. 4, May, 1911.
- <sup>3</sup> Howard: Quoted by Mapes, North Carolina Medical Journal.
- <sup>4</sup> Livermore: Southern Medical Journal, Vol. IV, No. 4, May, 1911.
- <sup>5</sup> Dorland: International Medical Magazine, review of Louisville Month. Jour. of Med. and Surg.
- <sup>6</sup> Review in Medical Times, New York.
- <sup>7</sup> Marrs: Medical Summary.
- <sup>8</sup> Hendricks: Medical Council.
- <sup>9</sup> Review in Medical Summary.
- <sup>10</sup> Cecil: American Practitioner and News.
- <sup>11</sup> Palmer: Ibid.
- <sup>12</sup> Blue: Ibid.
- <sup>13</sup> Neisser: Medical News.
- <sup>14</sup> Hyde and Montgomery, Moyer, et al., quoted by Gould, American Medicine.
- <sup>15</sup> Review in Therapeutic Gazette.
- <sup>16</sup> Sanger: Archiv. f. Der u. Syph., quoted by Annals of Gynec. and Pediat.
- <sup>17</sup> Lawson Tait: Quoted by Holmes, New Orleans Med. and Surg. Jour.

- <sup>18</sup> Montgomery: International Medical Magazine.
- <sup>19</sup> Valentine: Philadelphia Medical Journal.
- <sup>20</sup> Benzler: Quoted by Philadelphia Medical Journal.
- <sup>21</sup> Wilson: Medical and Surgical Reporter.
- <sup>22</sup> Christian: Therapeutic Gazette.
- <sup>23</sup> Culver: Venereal Diseases, quoted by Palmer, l. c.
- <sup>24</sup> White and Martin, Genito-Urinary and Venereal Diseases.
- <sup>25</sup> Anderson: Pacific Medical Journal.
- <sup>26</sup> Bumm: Archiv. f. Der. u. Syph., quoted by Therapeutic Gazette.
- <sup>27</sup> Sinclair: Quoted by Holmes, l. c.
- <sup>28</sup> Lydston: Quoted by Leuf, Medical Council.
- <sup>29</sup> O'Neil: Medical Record.
- <sup>30</sup> Englebreth: Review in Medical Council.
- <sup>31</sup> Lyons: Medical Record.
- <sup>32</sup> Hutchinson: Quoted by Fowler, Medical Times.
- <sup>33</sup> Routier: Ibid.
- <sup>34</sup> Casper: Berliner klin. Woch., quoted by Medical Record.
- <sup>35</sup> Dowd: Buffalo Medical Journal.
- <sup>36</sup> Bloom: American Practitioner and News.
- <sup>37</sup> Jadassohn: Correspondenz-Blatt f. Schweiz. Aerzte, quoted by Treatment (London).
- <sup>38</sup> Schall: Medical Times, New York.
- <sup>39</sup> Review in Medical Summary, l. c.
- <sup>40</sup> Valentine: Philadelphia Medical Journal.

## BACTERIAL VACCINES IN WOUND INFECTIONS.

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The successful treatment of infected wounds is an important factor with the general practitioner as well as the surgeon. As a result of the general application of aseptic methods, wound infection is of infrequent occurrence after operations, being chiefly observed after accidental injuries. Most abrasions of the skin met with in everyday life are so slight that they are disregarded and usually heal without any special attention, but not infrequently infections from virulent pathogenic organisms set in, and what appeared a trivial affair becomes a serious matter. If an exact record could be had of the deleterious results from slight injuries due to this cause, the showing would, no doubt, be appalling. Almost every physician has seen cases that were permanently crippled or lost their lives as a result of not bringing such infection under control.

Not appearing serious, many of these cases are treated with home remedies before the family physician is consulted. By this time the infection has usually extended beyond the reach of local applications, and constitutional resistance to the invading organism must be depended upon as the most important factor in treating the case. In extensive injuries a physician is usually called to treat the fresh wound, but even in such cases when all precautions in cleansing it are observed infection frequently takes place. Often wounds are lacerated or penetrating so that securing an aseptic condition is impossible.

When an infection once exists the question of establishing an immunity against the invading organism is a very important one. If the infection spreads rapidly accompanied by much inflammatory swelling and pain, it is evident that the immunizing mechanism is not responding adequately. In such cases we usually have fever and considerable constitutional disturbances, which we would naturally infer to be an expression of the immunizing response, but from actual experience we find that this is not the case. In very toxic cases the infection spreads most rapidly and when not brought under control will end in death. This would clearly indicate that the immunizing response depends on some other factor besides the toxic element in the infective process. Here is where the vaccine treatment comes to the rescue in treating these cases. When an adequate number of killed germs are injected under the skin the systemic response is not toxic but distinctly immunizing in effect, while the reverse is often the case with a progressive infection.

Various explanations have been proposed to account for this action of bacterial vaccines. Prof. T. E. Leary (*Boston Medical and Surgical Journal*, Oct. 6, 1910, p. 529) suggests: "It is possible that there is some selective action in absorption, so that certain beneficial stimulating substances may not be taken up by the lymph stream from the focus of infection." Prof. James G. Collison (*Medical Record*, June 24, 1911, p. 1137), in attempting to explain this special immunizing influence of vaccine in general infection, suggests that by subcutaneous inoculations of dead organisms these bacterial proteids are brought in great concentration into contact with those connective tissue substances which seem to be most active in the production of anti-bodies, and that the tissue-cell energy under the stimulus of these dead germs is expended in the production of anti-bodies, while in the progressive infection much of the cell energy is used up in combating the living organism.

It would appear that in a progressive infection the toxic materials produced by the living germs so irritate the surrounding tissues that as a consequence of the swollen condition the necessary immunizing substances are not absorbed, while the toxic materials allow the infection to spread; on the other hand, when a vaccine is injected under the skin the dead organisms do not cause enough reaction to hinder the absorption of the immunizing substances produced. This would indicate why these vaccines are harmless when used with ordinary precautions in advanced acute infections.

When this special immunizing influence of vaccines is once generally recognized they will no doubt be universally applied as a means of healing infected wounds. An essential element in the successful application of the vaccines is early treatment—the earlier the better. In this way the immunizing mechanism will be stimulated and an immunity established before much harm is done. In extremely toxic cases of advanced infections, where there is much constitutional disturbance, not so much should be expected, but even here the results are often marvellous. No case should be looked upon as hopeless unless the patient is in a state of collapse. As long as there is a fairly good pulse and sufficient vitality to give some hope of recovery the vaccines will be of benefit.

In the treatment of wounds the possibility of tetanus infection should always be kept in mind. This may be determined by the character of the trauma and the surrounding conditions where the injury was received. If the wound is superficial and has not been bandaged to exclude the air, tetanus infection is not likely, because the germ, being anaerobic, will not grow when exposed to the air. As this bacillus is prevalent in rich soil and barnyard manure, deep wounds, when exposed to such filth, should always be regarded as in danger of a tetanus infection. The bacillus causes very little, if any, local disturbance in a wound, and often, in a few days, disappears from the point of invasion, while it continues to grow in the nervous system. Wounds caused by toy pistols in the hands of boys are particularly prone to tetanus infection. The character of the dirt on the average boy's hand makes the presence of the tetanus bacillus always possible. The force of the explosion creates a small penetrating wound, carrying the dirt deep enough into the tissues to exclude the air, so that the specific organism can develop. The germ causing no material local disturbance, the injury is disregarded until constitutional symptoms develop. Wounds accompanied by much local disturbance, inflammation, pain and swelling, in the absence of tetanic symptoms can safely be regarded as not being due to this form of infection.

In all cases where a possible tetanus infection is suspected anti-tetanic serum should be given without delay. The prophylactic value of this serum is well established, while its efficacy as a curative agent, after the constitutional symptoms have developed, is not so pronounced.

After having excluded a possible tetanus infection the question of making a diagnosis to determine the infecting organism naturally arises. In

cases in which there is a discharge from the wound this may be established by a bacterial examination, but this takes time, especially where facilities for doing such work are not immediately available, while in most instances it is essential to start treatment at once, so early immunization may be taken advantage of. Furthermore, many wounds are of such a character that the infecting organisms have been carried deep into the tissues so that no specimen for bacterial examination can be procured. Not infrequently the point of entrance in the skin has healed over while the infection is developing beneath. From these considerations it would appear that the clinical symptoms are the most essential factors in determining the indications for administering the vaccines, and this may later be verified by bacterial examination.

In making a diagnosis we should always keep in mind the most probable dangerous organism, the streptococcus, and the more probable but less dangerous staphylococcus. Streptococcus infections have a tendency to spread rapidly, being especially prone to run along lymphatic channels, and leaving red chains, while staphylococcus infections are more liable to be closely confined to the point of invasion. More frequently we have a mixed infection of the two organisms. As other bacteria are seldom found, the logical thing to do is to give a mixed streptococcus-staphylococcus combination vaccine at once. Some one may object to such procedure because a vaccine may be used where no corresponding infection exists. Granting this, what harm could be done? The only effect such a vaccine could have would be to raise the immunizing power against the particular organism, and in infected wounds this is an advantage. Take, for instance, a case of streptococcus infection from an injury through the skin. If no staphylococci are present, in all likelihood they will be there before the wound heals, and become an important factor in the infection unless the patient is immune to that organism. The same principle may be applied in many ways. Erysipelas is recognized as a streptococcus infection, but the staphylococci normally on the skin are also a factor in this disease. In many examinations I have never found streptococci in cultures taken from the blisters so common in erysipelas, but staphylococci in abundance. As a consequence of the inflamed condition of the skin from the streptococcus the staphylococci also became active. In these cases a mixed vaccine containing streptococcus erysipelatus and staphylococcus answers a better purpose than a vaccine of the streptococcus alone. Dr. J. H. Mudgett (*Medical Council*, Jan.,

1912, p. 8) found that a case of typhoid fever which did not respond to typhoid vaccine improved immediately after administering a mixed streptococcus-staphylococcus-colon bacillus vaccine. This vaccine was given on the theory that the typhoid infection was complicated by other organisms. Tubercle infections are nearly always complicated with pus organisms.

In theory we may have a distinct infection to be treated by a specific method in mind, but in practice we usually have mixed infections to deal with.

Abundant clinical experience shows that streptococcus vaccine is particularly efficient when used early, but not so uniformly beneficial in advanced cases, especially where the blood has become infected. For this reason it is not advisable to use autogenous vaccines in the early acute stages, because this means several days' delay in treatment while the vaccine is being prepared. Nor should treatment be delayed to make a bacterial examination; the clinical symptoms in these cases are sufficiently clear to indicate what vaccine to use.

In cases of extensive wounds that have been cleansed and stitched by a physician, if there is the least suspicion a day or two later that an infection exists, a mixed streptococcus-staphylococcus vaccine should be used at once. In this way the infection will often be aborted and the case go on to recovery without pus formation. I find 30,000,000 streptococci combined with 100,000,000 staphylococci aureus and albus, each, a good average dose. Ordinarily the dose should be repeated on the second or third day, or within twenty-four hours, if no material improvement be observed. As a general rule inoculations should be made at shorter intervals in cases of severe infections than in milder ones. Improvement should, with few exceptions, be observed within twenty-four hours after the first inoculation.

The result attained with this method is so positively beneficial that no case of infected wound should be treated without the use of vaccines, especially where it is seen early in the course of the infection. This is very important. In the early stage of the process we are never in a position to know how the immunizing mechanism will respond. If it should be sluggish the infection may spread enough to do considerable damage before the patient is seen again. Where it has gone on for some time and the case is progressing favorably, the indications would be that natural immunity is being established, making the use of vaccines unnecessary. Nor should a case be considered too trivial for the use of the vaccines, because small affairs are often

very important to the individual concerned. The following case is a good illustration:

Miss G. H., a professional piano player, slightly pricked her middle finger at the root of the nail with a needle. Four or five days later the finger was considerably swollen and so painful that she was not able to use it. The following day she consulted me, but careful examination did not indicate the presence of pus. I gave her a dose of streptococcus-staphylococcus combination vaccine and advised hot water bandages as a local dressing. The next morning there was distinct evidence of pus under the root of the nail, the lunula appearing yellow. A small cut through the nail at this point established drainage, and considering the location considerable pus was discharged. The pain and inflammation subsided almost at once. The pus dried up and the inflammation disappeared so as to enable her to be back at the piano doing concert work the next day without material inconvenience. In all she was detained from her work but three days—the day before I saw her, the day the vaccine was given, and the day the abscess under the nail was opened. I saw her recently and found a new nail growing, showing that the infection had done considerable damage. Under conventional treatment extensive infections at the root of the nail are usually very tedious. Without the use of vaccines it would probably have required from two to four weeks' time to accomplish what was done by this method in two days. Being a professional musician, this was of very great importance to her.

Another very important factor in treating infected abrasions of the skin is the application of vaccines in burns. This condition presents two distinct stages; in the first the pain is caused by the burn, in the second by the infection of the burned area from germs normally on the skin. Of course, these infections depend largely on the extent and depth of the burn. The virulence of the causative organism and the immunizing response of the patient must also be taken into consideration. In these cases staphylococci are the most constant infecting organisms, although streptococci are also found. These infections are not only responsible for most of the existing pain, but much of the fever, rapid pulse, and symptoms of depression. When vaccines are used in such patients the immunizing mechanism is stimulated and a high state of immunity established. This not only relieves the patient of much suffering but materially aids in the healing process. In deep burns where the entire depth of the skin is destroyed the pain due to the infection during the time required for the de-

stroyed tissue to separate from the living is usually quite severe. Here the vaccines are a material aid. The following case will serve as an illustration:

Miss S. K., working in a laundry, got her hand in a mangel. The hand was badly crushed and horribly burned. Before the machine could be reversed and the limb withdrawn the entire top of the hand was burned so severely that the skin, all the tendons, and a part of three metacarpal bones sloughed away. A few days after the accident the hand became very much inflamed, swollen and painful, the inflammation showing more particularly at the margin of the burn. Considering this largely due to infecting organisms I administered a mixed streptococcus-staphylococcus vaccine. By the next day she was relieved of the pain and the swelling was not so intense. Four days later the hand became more painful again, and another dose of vaccine was given with the same favorable result. Inoculations were continued at from four to six day intervals until the slough was removed, and during all this time she suffered practically no pain, being able to sleep nights regularly. With the aid of extensive skin grafting the hand healed rapidly, making a good recovery.

The use of vaccines in these cases will not in the least interfere with any local or other treatment that might be desired. Rest in cases of infections is always desirable. It has frequently been demonstrated that fatigue has a marked influence in lowering the immunizing powers against pathogenic bacteria.

From frequent observations in my own cases and from consultations with other physicians I feel confident that bacterial vaccines are the most valuable remedies at our command in treating infected wounds, especially when resorted to at an early period.

**Sunlight in the Treatment of Tuberculosis of the Bones and Joints.**—Professor Bardenheuer, of Cologne (*Deut. Ztschr. f. Chir.*, Bd. 112, Hft. 1-3), writes encouragingly of the value of sunlight in surgical tuberculosis. According to his observations in Rollier's sanatorium excellent results are to be obtained in cases of tuberculosis of the spine with fistulous tracts, while hip-joint disease is cured there by sunlight alone. Of Rollier's 369 cases of surgical tuberculosis, 77.3 per cent. were cured, 13 per cent. improved, 8.5 per cent. remained unaffected, and 4 per cent. died. Since his visit to this sanatorium Bardenheuer has employed this treatment at his clinic in Cologne in ten cases of tuberculosis of the joints without an external opening. The most striking results were obtained upon fistulas following joint resections which, even if of long standing, closed promptly.

## REPORT OF A CASE OF PERICHONDritis OF THE CRICOID AND EPIGLOTTIC CARTILAGE.\*

By OTTO GLOGAU, M.D., New York,

*Assistant Surgeon to Mt. Sinai Dispensary, Dep't Ear, Nose and Throat; Otologist to German Odd Fellows' Home and Infant Asylum.*

Mr. M. K., was referred to me on December 2d, 1911, by Dr. S. Tandlich.

**Anamnesis.**—The patient had been perfectly well until five days ago, when suddenly he became aware of pain in the throat which gradually became more excruciating in character. Being unable to swallow he was becoming weak from lack of nourishment. Attempts at swallowing water or his saliva caused agonizing pain in the throat which extended up into his right ear. The pain was felt distinctly on the right side. Neither a history of syphilis nor of tuberculosis was obtainable; no history of injury or foreign body in the throat.

**Status Præsens.**—The patient appeared to be a middle-aged man, not very robust, and seemed to be suffering acutely. Externally no swelling was visible. The right submaxillary region was tender on pressure. The ear drums were normal. Upon depressing the tongue, a swelling was seen occupying the space between the base of the tongue and the epiglottis. It was of a deep red color, had a lobulated surface, was hard to the touch, and did not fluctuate. It was of the size of a walnut. The anterior and upper surface of the epiglottis formed part of the growth and was displaced backward by the latter, so as to completely occlude the entrance to the larynx. Inspection of the larynx was thus made impossible. The pharyngeal mucous membrane was reddened on the right side, but there was no bulging. Temperature 101 F.; pulse 97.

**Diagnosis.**—Acute perichondritis of the epiglottis.

As there was no ulcer present on the epiglottis itself (this is given as the most frequent cause of such conditions) I concluded that there must be some lesion in the larynx proper. The growth was incised, but no fluid was evacuated.

**Treatment.**—Hot antiseptic gargle, and hot flaxseed poultice externally.

December 3d, the subjective symptoms were unchanged. Upon inspection it appeared that the swelling had subsided a little and thus permitted a view of the larynx. A cyst-like swelling of a whitish color, the size of a hazel nut, was now seen projecting into the right side of the larynx, having its base on Santorini's cartilage. There was a diffuse infiltration of the right arytenoid cartilage and the posterior part of the cricoid cartilage, extending

forwards towards the annular portion of the latter. Here was apparently the primary focus.

Suspecting pus, the writer made several exploratory incisions with a protected laryngeal knife, but none was detected.

The following day a swelling the size of a fist appeared just below the jaw, the pus evidently having invaded the cellular tissues of the neck. No fluctuation, however, was discernible.

The writer called Dr. Freudenthal into consultation, and he agreed in the diagnosis and also in the advisability of opening the abscess from the outside.

**Operation.**—On December 7th, at St. Mark's Hospital, under general anesthesia, an incision was made over the swelling in front of the sternomastoid muscle and at the level of the hyoid bone. By means of blunt dissection and with aid of the index finger the tissues were separated until a large abscess cavity was reached and emptied of a considerable quantity of yellowish, foul pus. Within the cavity the carotid artery could be felt pulsating. On the roughened area of cartilage proved to be the partly destroyed annular portion of the cricoid cartilage. While examining this area the finger slipped through the wall of the abscess and a communication of its cavity and the interior of the larynx resulted. At this moment a quantity of pus escaped from the patient's mouth. A cigarette drain was inserted and made to protrude slightly into the larynx, thus effecting through-and-through drainage. The patient improved rapidly. The drain was shortened daily until its final removal.

The larynx and pharynx have become normal again except that there is still a slight induration in the upper part of the epiglottis.

**Etiology.**—As regards the possible etiology of the abscess, the pus of which contained streptococci in chains, both syphilis and tuberculosis may be excluded from consideration. The Wassermann reaction and also the von Pirquet test gave negative results. The one point which may aid in clearing up the obscure etiology is the fact stated by the patient, that when he had been sick a few days he had spit up a hard mass (foreign body?).

It is likely that this foreign body had been the direct cause of the abscess formation. Thus an infection near the right arytenoid cartilage caused a perichondritis of the same. From here the infection spread to the cartilage of Santorini and thence to the anterior part of the epiglottis, which gave the picture of swelling and induration at the base of the tongue first seen. The abscess burrowed into the neck where it was opened by operation.

1320 Madison Ave.

\* Presented before the Yorkville Medical Society, Jan. 15th, 1912.

PUBLISHED

BY THE

## International Journal of Surgery Co.

FRANK C. LEWIS, M.D., Managing Editor.

100 William St.—Woodbridge Building.  
NEW YORK, N. Y., U. S. A.

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## Editorial Department

NEW YORK, FEBRUARY, 1912

## SURGERY OF ACUTE PANCREATITIS.

It is only in the last decade that the surgical treatment of acute pancreatitis has received any degree of attention. The diagnosis in these cases has been and still is so difficult, the symptoms frequently develop with such rapidity, the depression is often so profound, that it is not surprising that the surgeon has seldom had an opportunity to exercise his art even if the patient's condition offered any hope of success from his intervention.

While the prospects in this field of surgery have considerably brightened of late, thanks to a more careful study of the disease and the improvements in diagnosis, it must be conceded that operation in these cases is often an emergency measure, owing to the sudden onset of the symptoms and the marked collapse with which they are commonly associated. Much more is to be expected in the future from a timely recognition of the antecedent conditions which culminate in the acute form of pancreatitis. In a recent discussion on the subject before the Society of Internal Medicine of Berlin, Professor Hans Kehr (*Deut. med. Wochenschrift*) made what appears to us the very significant statement, that "before we treat acute pancreatitis we must treat chronic pancreatitis." While at first sight this assertion seems contradictory, a consideration of the reasons presented by him shows that it is based upon good and substantial evidence. As he points out, it is extremely rare for a previously healthy

pancreas to become the site of necrotic changes, the conditions here being much the same as in the case of cholecystitis and gangrenous appendicitis. If, therefore, the presence of chronic pancreatitis be recognized at an early period, the occurrence of acute processes may thereby be prevented.

In view of the intimate relations between the biliary system and the pancreas and the frequent existence of pancreatic lesions in diseases of the gallbladder and ducts, either as the result of infection or of pressure from gallstones, it has become a matter of importance to investigate the condition of this gland in all operations in the upper abdominal region. Kehr tells us that in his first 900 operations upon the bile passages he paid practically no attention to this, but since 1904 he has palpated the pancreas in every instance, and has found that in about 50 per cent. of all cases of cholelithiasis and in about 14 per cent. of those of cholecystitis it was more or less affected. Although the changes found did not usually warrant the diagnosis of chronic pancreatitis, there were commonly present induration, swelling, and enlargement, a condition which has been designated by Arnsperger and Franke as lymphadenitis pancreatica.

It would seem, therefore, that if the pancreas were more closely examined during operations upon the gallbladder and bile ducts and any existing changes more accurately determined and interpreted, a great deal could be accomplished in the prevention of acute pancreatitis. Although after such operations the pancreas no doubt frequently returns to a normal state, all cases in which distinct inflammatory lesions are present should be managed with especial attention to these, and kept under continued observation.

## JOSEPH LISTER.

If greatness be measured in achievements for the benefit of mankind, Joseph Lister, who died on February 11th, deserves to rank high among the greatest men of all times. His work has well-nigh banished that once terrible menace to successful surgery—wound infection; it has made possible the invasion of regions of the body formerly deemed beyond the reach of the most venturesome surgeon; and it has exerted a mighty influence upon every branch of the healing art. Endowed with keen powers of observation, a logical mind, and that infinite capacity for taking pains which is genius, Lister early realized the significance of Pasteur's discoveries as to the cause of fermentation and putrefaction and their bearings upon the origin of hos-

pital gangrene, pyemia, and septicemia. The methods he evolved to prevent and control infection have undergone marked changes in the course of time; simplicity in technic has replaced the complicated and cumbersome procedures of former days; antisepsis has yielded in a large measure to asepsis; but the principles enunciated by Lister will endure forever.

### NITROUS-OXID-OXYGEN ANESTHESIA.

There has been no lack of attempts in recent years to supplant the use of ether and chloroform by other methods supposed to be safer, more agreeable, or convenient. Thus, for instance, we have witnessed the development of local anesthesia, spinal analgesia, the use of morphin-scopolamin, or hyoscin, and lately the growing popularity of nitrous-oxid-oxygen anesthesia. When such eminent surgeons as Crile and Bloodgood speak of the passing of ether and chloroform and the supremacy of nitrous-oxid-oxygen, their statements are bound to carry great weight. On the other hand, the skepticism of anesthetists of vast experience, as Gwathmey, is equally entitled to consideration.

If it be asked why such differences of opinion should prevail, the only rational explanation is the personal equation of the anesthetist. It stands to reason that a man who has been accustomed to specialize on ether or chloroform will acquire a degree of skill and knowledge in their administration that will assure a maximum of efficiency and a minimum of ill-effects. The results of another thoroughly conversant with nitrous-oxid-oxygen may be equally satisfactory, as shown by Leigh (*Old Dominion Jour. Med and Surg.*).

After all, it must be remembered, however, that in many cases of operations no skilled anesthetist is on hand, and the important point to decide is what method can be most safely intrusted to a less trained assistant. Looking at the matter from this practical standpoint, undoubtedly no agent has been introduced for general narcosis that can compete in convenience and simplicity with ether or chloroform, with or without previous administration of morphin.

In expressing his views on nitrous-oxid-oxygen anesthesia Bloodgood (*Pennsylvania Medical Journal*, January, 1912) frankly concedes that it is not to be looked upon as quiet; that it makes the surgeon's work in some operations more difficult, and that he will have to accustom himself to this method. It is also necessary to give morphin and atropin one-half hour before the administration of this

gas, and to sometimes repeat the former in small doses. Moreover, it appears that not infrequently ether will have to be given, a few drops at a time. If anesthesia, which should be expected in at least five minutes, does not ensue, then it must be ascertained whether the gas is all right or the apparatus or bags have no leaks; if they are in good order, a little ether is needed. So we observe that after all ether may be, and, indeed, is quite frequently required in this method.

The truth of the matter, as pointed out by Babcock (*Monthly Cyclop.*), is that "there is no universal anesthetic, nor has the ideal anesthetic been discovered." The chief need is sufficient number of skilled professional anesthetists, who will be thoroughly familiar with all approved methods and possess the requisite experience to select the one best adapted for the individual case.

### GYNECOLOGICAL HINTS.

By RALPH WALDO, M.D., New York.

It is well to remember that sterility may be due to the husband, and therefore before any treatment is instituted a microscopic examination of the semen should be made to ascertain whether well-formed spermatozoa are present. In men who have had double orchitis from gonorrhea or mumps, you will frequently find that there are no spermatozoa, although in other particulars they may be in perfect health. Probably in not far from 5 per cent. of cases sterility is due to the male.

In women, probably the most frequent causes of sterility are antelexion of the uterus, stenosis of the cervical canal, and salpingitis. In the first two conditions sterility is probably due to the resulting endometritis more than to mechanical obstruction. Drainage of the uterus, by thorough dilatation or appropriate operation, will frequently produce a cure.

Inversion of the uterus may be mistaken for a polypus projecting from the cervical canal. Before operating a careful differential diagnosis should be made, for the removal of a polypus is usually a simple procedure, whereas if part of an inverted uterus is cut off by mistake, the woman will probably die in a very few minutes from internal hemorrhage due to wounding of the ovarian and possibly the uterine arteries. As soon as these vessels are divided they retract into the abdominal cavity and are very difficult to reach. This accident has happened a number of times.



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### REPORT OF CASES OF FRACTURE AT THE SHOULDER AND ELBOW JOINT; TREATMENT AND RESULTS.\*

By W. T. MATHEWS, M.D., Greenwood, Miss.

I am glad to be with you to-day. Seldom has it been my privilege to read a paper before so learned a body as comprises this Association. I wish to thank our secretary, Dr. J. U. Ray, for the courtesy of allowing me the privilege of addressing you, and hope that the mite I offer may be profitable to some one present. Instead of taking up your time on popular surgical topics of the day, I am going to ask your attention for a few moments to a subject as old as the art of surgery, as interesting as you may choose to make it, and as important as any of our daily work.

The diagnosis, prognosis and treatment of fractures into the larger joints or their vicinity are important from the fact that the function of the limb is often more or less permanently impaired, and the results are apparent not only to the patient but to his friends and acquaintances.

The symptoms in most fractures are false point of motion, preternatural mobility, crepitus, pain on pressure, delayed ecchymosis and loss of function.

Fractures into the larger joints always occasion shock rather profound in character, but in no joint is it so marked as in the knee. In reports in surgical volumes of the history of the War of the Rebellion a very goodly number of patients sustaining injury of the knee-joint succumbed to shock.

In no class of surgical cases should a surgeon be more guarded in giving a favorable prognosis than in fractures as a whole, and particularly in those occurring into and around the larger joints. Especially is this true of fractures extending into the elbow-joint; in none of them do we have such a large number of ankylosed joints, with more or less permanently impaired function, and it is on account of this that I am prompted to report two cases which I have had recently.

Case 1. A. B., aged thirty-six, was injured January 1st, 1910. While at work under a box car standing on a siding, in Greenwood yards, a mov-

ing train on the main line of the Southern split, a switch and two cars went in on the side track and struck the car he was working under, causing his arm to be caught between a brake beam and a hydraulic jack. He suffered the following injuries of his left arm: A compound dislocation at the elbow of the ulna and radius, together with a fracture of the inner condyle of the humerus. The patient suffered considerable shock. The soft tissues, muscles and tendons were considerably contused and lacerated. There was no marked hemorrhage.

The dislocation was reduced, the wounds of the soft structures were cleansed and all ragged portions of tissue cut away, drainage was used, the wound stitched, the line of suture painted with tincture of iodine, and a dressing applied. The arm was put in a position of semi-flexion in a splint. He suffered a great deal of pain, with considerable swelling and some increase of temperature. On the third day I removed the dressing for inspection and found discoloration, withdrew the drain and irrigated with a 10 per cent. solution of carbolic acid. This was continued daily for ten days, and on the eleventh day, when the wound had completely healed and the swelling was gone, I put the arm up in a permanent splint and dressing, which I allowed to remain for fourteen days longer. Then I removed the dressing and found the elbow ankylosed, which I expected. Hot applications were made and passive motion used, with gradual improvement of the function of the arm.

At the end of ninety days the ankylosed condition had disappeared, and he had perfect use of his arm and was dismissed on this date.

Case 2. C. B., aged twenty-eight, was injured November 12, 1910, as follows: While swinging out of the door of a moving box car in Greenwood yard, he was struck by a car standing on a side track just in the clear. He sustained a forward dislocation of the left shoulder-joint, a fracture of the upper third of the humerus, and a fracture of the acromion process of the scapula of the same arm. He also had a lacerated and contused wound of the upper lip and a wound of the scalp, extending from the left eye to the occipital protuberance. There were present severe shock and considerable hemorrhage. The patient had some concussion of the brain, remaining unconscious for several hours.

The shock was relieved and the wounds of the lip and head were sutured and dressed. The dislocation and fractures were reduced, a pad was placed in the axilla on the injured side, and the forearm flexed on the arm and carried across the

\* Read at sixteenth annual meeting of Association of Surgeons of Southern Railway, Charlotte, N. C., May 29-31, 1911.

chest till the hand rested on or near the sound shoulder; then by manipulation I placed the fragments into position and applied a Velpeau bandage.

The dressing was removed after thirty-six days and the shoulder and arm were found to be in perfect condition as to function and position. Patient was discharged.

### PELLAGRA.\*

By B. S. LITTLE, M.D., Colbert Ga.

In selecting the subject of pellagra it is my intention to report to you two or three of the most interesting cases that I have had, and get you to take this matter up for a short while and discuss it, and see if we can in this way be of help to each other in treating this disease which at the present time is spreading at an alarming rate all over our Southland and is very prevalent in my section of the country. Jackson County, a county adjoining to ours, now has forty-five cases. In our town we have had some six or eight cases in the last few months, and only a few days before I left home one of our very best and wealthiest citizens died from this disease. It is developing among our railroad men and at the rate it is now spreading it will soon begin to seriously interfere with our working people. It is claimed that fifty thousand cases have been reported since pellagra first appeared in the United States.

The first case that I wish to report to you was that of a young married woman, about twenty years of age. Her husband was a section laborer, and he stated to me that his wife was suffering with indigestion and constipation. Her mouth was then beginning to get sore, but her hands were not affected. She lost flesh very rapidly and had a poor appetite, but instead of having diarrhea she suffered with constipation during all the early stages of the disease. The patient's mouth and stomach were in such a condition that but little medicine could be administered; so I put her on the rest cure with a diet of milk and raw eggs and treated the constipation by enemas of glycerine and olive oil. Under this treatment she improved slowly and I began to think that she was getting well. She moved away and I lost sight of her for about one year. At the end of that time she was brought back to me in the last stages of pellagra with all the characteristic symptoms. She died in a few weeks.

The next case is that of a prominent physician's wife, who is still under treatment. She is about

thirty-five years of age and has five or six children. She has been in poor health for several years, and about five years ago I assisted her husband in treating her for an abscess in the lower bowel (descending colon) near the rectal pouch. The abscess discharged through the rectum and she improved, but her skin took on a yellowish cast and she began to lose flesh. She had lived in a malarial section for some time previous to this and I advised her husband to take her to Florida. He did this and she improved very greatly for a while. They moved back up the country, and while her skin still had a yellow cast, she showed no signs of pellagra up to about five months ago. She now has the sore mouth, sore hands, and the diarrhea at times, but all seem to yield to treatment except the nervous disturbances which seem to be out of all proportions in severity to the other symptoms. She has days when she is perfectly helpless and cannot even feed herself. She has also developed a tendency to convulsions, and in fact has had several light attacks. Her mind is good, and in none of my cases has the disease affected the mental functions alike; some of them keep in their right mind, while others lose it entirely.

The diagnosis of pellagra, in my experience, has been by no means an easy matter in the early stages, and I believe that this is one of the hardest problems that we will have to solve before we can successfully cope with this malady. It has been my experience that in quite a number of these cases the patients first suffer with other disorders, lasting for some time and not at all resembling pellagra, and finally after a long period has elapsed they begin to develop symptoms of the disease which become more and more characteristic until we have a well developed case. This is well shown by the case of a young man at present under my treatment. He was strong and healthy up to about three years ago when he was thrown from a horse and sustained a sprained wrist and was pretty badly shaken up otherwise. He was about twenty years of age at that time. Soon after symptoms of autointoxication appeared with slight fever at times. Following this he contracted malaria and had a few dumb chills, and also suffered from constipation, while his skin showed a yellow cast. He improved under treatment and was getting along very well when an attack of measles occurred. A few months after his recovery from measles he had smallpox. I kept him under treatment and he was slowly improving apparently when pellagra developed. I wish to state

\* Read before Seaboard Air Line Railway Surgeons' Association.

that up to within three months ago this young man did not, so far as I was able to determine, show any symptoms of pellagra, but since then has had the sore mouth, sore hands, and diarrhea. The mental depression is already very noticeable. While all these disorders have yielded well to treatment except the mental depression, yet others keep on coming just as in almost all of my cases. There is one very peculiar symptom that has been very noticeable in all my cases, and that is the skin of the hands and feet takes on a thick, rusty, scaly appearance, especially the hands, the skin of which somewhat resembles that of turtle claws.

In regard to the treatment of pellagra I have not tried to follow any routine. In none of my cases have the symptoms been alike all the way through, and in many instances I have simply treated the symptoms as they arose. I have used arsenic, calcium sulphide, iron, and lately sulphur and cream of tartar for the sore hands and feet. For the diarrhea I have sometimes administered bismuth, pepsin, lime water and catechu. As a local application I employ olive oil, glycerine and boric acid. For the nervous symptoms, which in some cases are very troublesome, I give the bromides with hyoscyamus or cannabis indica. The opiates have not acted well with me in most of my cases. Some have done better just on the rest cure with a diet of raw eggs and sweet milk. In warm weather I let them sleep out on the veranda and keep them as quiet and as free from all worry and excitement as possible. I find that too much exercise and company is very bad for these patients, and in the country districts where there is so much visiting it is one of the hardest things we have to contend with.

As to the cause of this disease, you are all well acquainted with the different theories that have been advanced. The most plausible one to my mind is that of Dr. H. F. Harris, one of our most noted Southern physicians, and who as secretary of the Georgia State Health Board has given no little time and study to this subject. He claims that eating damaged western corn shipped into our country ground into meal has caused the spread of this disease over the South. Dr. Henry Garman, a prominent Government physician, believes that the buffalo gnat is the cause of pellagra. I fear I have made this paper too long, but I am anxious for you to discuss this subject, as this is a very fatal disease and one that is spreading rapidly and we need to help each other in trying to stamp it out.

## PSYCHIC PHENOMENA.\*

By L. C. RUTER, M.D., Madison, Fla.

I am well aware of the fact that the subject I present for discussion is a very complicated one and one that the most scholarly men approach carefully. The only apology I have to offer for choosing it is the hope that some of you will know more about it than I do, and that we will all be enlightened by the discussion that follows. Psychology, or the study of the science of the mind, is of the greatest importance to every man that tries to be a true follower of the healing art. Suggestion and faith will, I think, lay a pretty good foundation for a psychological essay. I believe we as physicians do not know, or at least do not appreciate, the power of suggestion.

So far as I can learn man is endowed with two separate and distinct minds—the objective and the subjective. The objective or, as I will call it, the anatomical mind, is that conferred on us by the power of seeing, hearing, feeling, tasting, smelling, etc., or, I might say, the mind of the special senses. The subjective mind is one that is independent of all the anatomical make-up of a human being. It is part of you; it stays with you. It never forgets, it is your thought; it is the mind that leaves you and goes wandering away off over your past life. It is the mind that remembers things you think you have forgotten. It obeys the first law of nature—self preservation. It warns you quicker than a flash of lightning of danger and tells you how to escape the injury you may be subjected to. It is the mind that is swayed by suggestion, the emotional mind, the one that gives you joy or sorrow. It is the mind that stays with you while you are living and lives after you are dead. It is the soul.

Now granting that the mind of man is dual we want to know something about the duties of the two minds, but in this short paper I will not dwell on this part of the subject. I will only say that my idea from what study I have given to it is that the objective mind is the one we use in every day life, so to speak. It is the mind we reason and calculate with. The subjective mind is that which comes to the front when the cares of life are set aside for a little while. Something must occur to give the objective mind a little backset, and nothing can explain this backset to the objective mind better than suggestion. Hypnotism drives the objective mind back and the subjective comes vividly to the front. Natural sleep brings out the subjective mind, and the

\* Read before Seaboard Air Line Railway Surgeons' Association.

nearer one approaches to death the more to the front will come the subjective mind. This is a feeble effort at differentiating, but I hope it is enough to give some idea of the two forms of the mind.

As I said before psychology is a science that physicians should know something about, and I believe most of them use the subjective minds of their patients as a therapeutic agent much more than they are conscious of. When a doctor walks into a sick room, asks a few questions, feels the pulse, takes the temperature, looks at the tongue, etc., his patient watches him and listens to what he has to say very closely. Make him have faith in you, if possible, and you will have laid part of your psychological foundation. Then write a prescription to meet the indication as nearly as you possibly can, leave directions how to nurse him and how to give the medicine, tell him it will help him and that he will get well, even if you have to tell him at some future time that he must die. By your suggestion you have laid the balance of your psychological foundation.

Doubtless each of you can remember before you were doctors the confidence you had in your old family physician and can remember the good it did you to look up in his cheerful face and hear him say, "Oh, you are not much sick, you will soon be all right," etc. We as medical practitioners do not appreciate the amount of good we do by dropping even such little bits of psychotherapy as we unconsciously do. We ought to use psychical treatment a great deal more than we do, for we have no one therapeutic agent that stands by us as faithfully as confidence. We should be equally careful not to suggest either by word or sign anything serious or doubtful in the presence of the sick. A long-faced doctor who is always gloomy and doubtful never fails to leave his patient depressed and gloomy himself after the visit is over. He suggests it to him by his looks and actions. Did you ever notice that if you gape or yawn in a crowd almost every one that sees you will follow your example. It is because you suggest it to them, and it is just as sure that if you are gloomy in the presence of your patients you will leave them in the same condition.

It is the subjective mind that is brought to overbalance the objective in hypnotism, mesmerism and telepathy. I cannot enter into any of these branches to any extent, but if any of you are interested in the subject, your time will be well spent by reading it up at your leisure. Telepathy is an extremely interesting part of psychology and accounts for all the mysterious, wonderful works of the spiritualists. It is mind reading in a scientific way. It is just as

easy for a good operator, or one well up in psychology, to tell what your subjective mind contains as it is to hypnotize you. Even more than this can be done; he can tell you things that you have forgotten objectively long ago; anything that the subjective mind has ever known he can bring out.

To place a person in a condition for telepathic communication he has to be perfectly passive; then the operator has to put himself in the same state. It is impossible to get any communication between two minds unless they are both absolutely passive. When both are so, as I understand it, they are next put into a partial hypnotic or mesmeric condition. Now the objective mind is in the background and the two subjective minds have come forward, that of the operator and of his subject, and they are now ready for communication. While in this condition ask him any question you want, and if it relates to anything that has ever been on your mind he will answer your question as correctly and quickly as you could yourself. If you ask him something about some deceased friend of which you have actual knowledge he will tell you just as much as your own subjective mind knows. To make a long story short, he will tell you anything you yourself know about him. On the other hand, for instance, if you ask where your friend was at the time of his death and you yourself are ignorant of this, the operator will tell you quickly that he cannot answer that question at present. If, however, there is a third person in the room that does know where your friend died and this third person is in a passive state (as they usually are because the power of suggestion is there), the operator will take it from his subjective mind and quickly inform you.

Hypnotism is nothing more than the operator and his subject going into a passive condition and the operator commanding and controlling his subject by suggestion. Mesmerism, as I understand it, is pretty much the same as hypnotism, only the sleep is more profound. There are other forms, such as clairvoyance or seeing in the subjective state and clairaudience or hearing in the subjective state. Catalepsy is a sleep of the objective senses, in which the law of suggestion governs the phenomena. Volumes might be filled with well authenticated cases of suspended animation, varying in duration from a few hours to many days. Catalepsy is not a disease in the proper sense of the word. The most that can be said is that it may be considered as a symptom of certain nervous disorders. It belongs exclusively to the domain of hypnotism; it may be induced in a hypnotic subject or it may supervene after a long period of illness

or nervous exhaustion. Catalepsy marks the crisis in certain diseases and should not be interfered with. The patient in this condition is in a state of absolute rest; he is free from all pain and enjoying a refreshing sleep, although this is so profound that it very closely resembles death. No heroic treatment to hasten restoration to consciousness should be indulged in; if it is and the attempt is successful, it will cause a fearful shock to the nerves, and the effort that nature is making to relieve the sufferer and give rest to his overstrained nervous system will be thwarted. A patient in a cataleptic state can be controlled by suggestion just the same as if hypnotized; a person in this condition is always subjectively conscious of all that happens around him. Many cases are reported where the person noted all the preparations for burial and all that was said and done, and yet was unable to move or make the fact known that he was alive.

When catalepsy is suspected or is possible, all allusion to or suggestion of death should be avoided, especially by the physician. It should be remembered that you are dealing with the subjective mind, and that mind is under the control of suggestion. Conversely it must be the most potent means of restoration. The essential thing is a cheerful, confident demeanor in all present at the bedside. Time should always be given for the conservative forces and recuperative powers of nature to do their legitimate work. Remember the only absolute sign of death is decomposition.

With this brief description of some of the phenomena of psychology I will continue a little farther with the subjective mind. We often hear of and see persons in great danger and with death staring them in the face, yet they are as calm and collected as if they passed through the same danger every day, and while in this state they will act as quickly as a flash and almost always in the right way to save themselves. After they are out of danger they become much scared and tremble when they think of the risk and their narrow escape. People will say, I don't see how you kept your head so well and I don't see how you thought so quickly to save yourself. The fact is when the person was in danger the subjective mind came to the rescue, for time and space are no obstacle to it. When anyone is in imminent danger, the slow processes of the objective mind in reasoning out a plan of escape are too slow. After the danger is over and the state of excitement comes, it is the returning of the objective mind. The nearer one approaches to death from any cause the more to the front will come the subjective mind. In

old age the objective mind grows dimmer and dimmer and the subjective creeps out more and more until finally the old person, while he may not mention it, is only waiting for the command to step forward, and nature or more likely the Creator arranged things in this way, so death when the time does come is not so horrible as it appears to us while in the every day objective state.

I have heard the subject discussed whether or not it was a doctor's duty to tell a person when he is going to die, and it was the experience of all the older physicians that it did not excite the patient in the least to inform him of this. If he really is going to die this is true, and it does not disturb him because he already knows it long before the doctor tells him. Why? Because he has approached near to death, and the subjective mind has heavily overbalanced the objective, and through the phenomena of telepathy he knows all. Hence there is no surprise or shock when he is told.

Suggestion is a great ruler of every person's life. Take a child that has never had anything suggested to it from childhood to adult life and what would it be? There is not an hour of our lives that we are without suggestion; it may not be derived from other persons, but it will be auto-suggestion. If you are up-town and it is near your dinner hour you will say to yourself that you had better go to dinner. It is only by the force of powerful auto-suggestion that man is able to keep his equilibrium mentally at all. Just as soon as something begins to disturb him mentally, a strong auto-suggestion comes to his rescue, impressing him that the trouble he is having is not as bad as he thinks it is, and he will finally suggest something that will relieve him of his mental disturbance. We all have to continually suggest things to ourselves that will help us over the dark places in our lives. Every person has a weak spot mentally, and if it were not for this self-suggestion constantly pointing out the way to over-balance this weakness, the defective mental part would predominate and the mind would be lost.

#### THE LATE DR. RHETT GOODE.

It is with deep regret that we announce the death of Dr. Rhett Goode, who for many years was a prominent member of the Association of Surgeons of the Southern Railway and a valued contributor to this Journal. The following beautiful tribute appeared in the *Southern Medical Journal*, January, 1912.

"On Friday, the 22d of December, 1911, the city of Mobile was startled and shocked by the unex-

pected death of one of its most widely known and best loved physicians and surgeons, Dr. Rhett Goode. Though for several months the condition of his health had not been satisfactory, yet the thought of any immediate danger had not entered the minds of his friends. If such was suspected, it was only permitted lodgment in his own mind, but now that all is over some expressions of his are recalled that suggest an anticipation of the approaching end.

"He was too well posted in the sign language of pathology not to read therein indications of an inevitable result, but he took it with calm cheerfulness and did not betray the solemn secret.

"It falls to the lot of few men, in these days of sordid selfishness, to make so many and such devoted friends as blessed the life of Dr. Goode. Such friendships were justified. As a physician, he was unusually successful; as a surgeon, conservative and wise. His great efficiency was recognized by those whose positions required of them discriminating judgment in the selection and appointment of medical and surgical officers. At the time of his death he was Surgeon-in-Chief of the M. & O. R. R., and the N. O., M. & C. R. R., and Division Surgeon of the Southern Railway, besides many other official positions.

"For many years he was City Health Officer of Mobile and during those years he constantly made friends and reputation by his successful fights against epidemic diseases that threatened general disaster. He was retained in this important office until newly-made laws caused its duties to clash with other obligations. While performing this arduous service he became an active member of the 'Can't-Get-Away Club,' and as he lay receiving the last visits of respect and sorrow, its badge, which is only worn after death, lay upon his bosom.

"His death leaves vacant the office of Dean of the School of Medicine of the University of Alabama, a position of honor and responsibility bestowed upon him by his colleagues in the faculty upon the passing of the lamented Ketchum.

"Only a few weeks ago he was elected President of the American Association of Railway Surgeons. Nearly every charitable and social organization in Mobile claimed him as brother, and as he lay before the altar in the church of his choice his pastor praised his regularity in attending to his duties connected therewith.

"The friends who bore his casket from his door were the high railway officials whose roads he served as surgeon, the President of the State University, a representative of the faculty of his school, and

some of the leading business men of the city. As honorary pallbearers followed the other members of his faculty, who had been his colleagues, and the remainder of the teaching force. At the cemetery it seemed as though all his fellow citizens had assembled to testify their sorrow, and the mounds of floral tributes sweetly spoke of the love and honor felt by the donors. It was a noble ending for a useful life, a life full of faithful and successful service to his fellow-men."

## Surgical Gleanings

**Emergency Surgery of the Hand.**—Dr. J. E. Bacon (*South. Calif. Pract.*, Nov., 1911) remarks that after having had the usual sad experience of the enthusiastic young practitioner, and after having had a large number of these cases under his care, he finds that his tendency is to spend more time in cleaning up, to use more soap and water, weaker antiseptics, to avoid tension or rough handling, and to insist on absolute rest of the part until function is well re-established. He believes that the ultimate results are better and better, and in certain cases which seemed beyond hope the outcome has so far exceeded anticipation that a healthy optimism nourishes the feeling that, "Where there's life there's hope," if treated with conservatism, patience and time.

**Operative Treatment of Fractures.**—Dr. E. P. Magruder (*N. Y. Med. Jour.*, Dec. 23, 1911) concludes that operation is indicated in the closed fracture of wide displacement and when correct apposition is otherwise impossible, provided hospital facilities can be obtained. Operation is indicated in articular fractures when ankylosis threatens, and the best results are obtained after exact coaptation and suturing of the fragments. Massage, followed by early passive motion, gradually made active, should be the practice. When operation is indicated at all, the earliest operation is best. The operative treatment of open fractures is that which most nearly reduces them to the type of the closed fracture, except as to drainage. Gunshot fractures should be treated like fractures of the open type in contact with street dust. That is to say, in addition to the usual treatment, we should administer, as a wise precautionary measure, antitetanic serum. In all cases the most exact coaptation and retention of the fragments gives the most gratifying results. The ideal suture is one strong enough to hold until union begins and then admit of its own absorption. The nearest approach of this is the sixty day chromic catgut, which is unsafe and unsatisfactory in the presence of tension. The most trustworthy metal suture is the tinned steel annealed wire. Wiring is the best operative method of treatment. Because of the dangers of an osteomyelitis the medullary canal should not be invaded if it can be avoided.

**Disease of the Thyroid.**—Dr. C. H. Mayo (*Jour. Mich. S. M. A.*) states that the early operation of ligation cures many cases. Early as well as advanced cases can be cured by partial thyroidectomy. Very late cases, with degeneration of the heart, kidney, and liver, can be improved but not completely cured by partial thyroidectomy. The mortality in these cases will vary from 1 to 4 per cent. Combined operations are often indicated in bad cases; first ligating one or both superior vessel areas, and, later, doing a partial thyroidectomy. Local anesthesia is indicated in most ligations. Local or combined, or straight ether anesthesia, are the methods used for thyroidectomies, according to the preference or experience of the individual operator. In 900 operations performed on the thyroid in St. Mary's Hospital, Rochester, Minn., during the first ten months of 1911, the mortality was 1 per cent.

**Hernia of the Umbilical Cord.**—Dr. W. Hannes (*Muench. med. Wochensch.*, No. 50, 1911) reports that since 1900 six cases of hernia funiculi umbilicalis have been observed in the Gynecological Clinic of Küstner, of which five were operated upon. The case in which operation was not done was one of Meckels diverticulum in a very small hernial sac, the patient dying on the eighth day from an intestinal fistula. Radical operation was performed in the other cases, usually on the first day of life. The liver was found in the hernial sac in four cases, and in two as the sole contents. In one instance Küstner found it necessary to resect a considerable portion of the liver. The child survived the operation, but died on the twenty-first day from a severe attack of acute melena. One child died several hours after operation of asphyxia. Here the reposition of the largely prolapsed liver was followed by an asphyxial attack during the procedure. Under similar conditions it would be worth considering whether resection of the liver would not have been more suitable than reposition. Usually in cases with large hernial apertures it is possible to reduce the prolapsed intestine and unite the abdominal wall even in spite of the defects commonly present. The fact that four out of six children were saved is an argument for immediate and radical operation in this class of cases.

**Treatment of Joint Infections.**—In an instructive article on this subject, Dr. C. Ogilvy (*N. Y. Med. Jour.*, Dec. 2, 1911) presents the following practical notes relative to operative treatment: 1. A tuberculous joint abscess is intrinsically a cold abscess. 2. First, aspirate; second, aspirate; third, aspirate. 3. If the process continues unchecked after repeated aspirations and in spite of mechanical treatment, and the abscess begins to point, open it, evacuate, and irrigate thoroughly with a 1 in 4,000 bichloride solution. Sew up the incised wound with two layers of sutures. Do not incise over the infected area (where the abscess is pointing), but go through uninvolved tissue at one or the other side of the abscess. 4. If more radical surgical measures are demanded, do an erosion. Upon the foci

of disease apply pure carbolic acid and follow by alcohol. 5. Never excise the joint in childhood unless it be *en dernier ressort* to save the limb. 6. In adults, on the other hand, an excision of the joint is the best operative procedure, especially in long protracted cases of two or more years' duration. 7. Do not delay a moment in operating upon an acute, suppurative joint infection. Make a longitudinal opening on both sides of the joint and flush out thoroughly. Use catgut drains. 8. If a rubber tube drainage is deemed necessary for subsequent irrigation, remove it within forty-eight hours, otherwise the tube is likely to permanently injure the adjacent synovial membrane. Loss of function is due, in great part, to the destruction of the superficial layer of synovial membrane. 9. Begin massage and passive motion as soon as possible after operation.

**New Operation for Fixation of the Kidney.**—The operation described by Dr. F. McKelvey Bell (*N. Y. Med. Jour.*, Jan. 20, 1912) is said to take advantage of the old method of suspension for the purpose of holding the kidney in position temporarily while the process of healing is going on, at the same time placing the organ in a suspensory ligament from which it is almost impossible for it to escape. An incision three inches in length is made two inches external to the spinous processes of the lumbar vertebrae, vertically downward from the lower border of the twelfth rib, through the skin and fascia; the fibers of the outer portion of the erector spinae are bluntly separated and the quadratus lumborum is incised. The posterior layer of the transversalis fascia is incised carefully about one inch from its spinous attachment and the divided edges are caught with artery forceps. The kidney is then enucleated in the usual manner and the perirenal fat is excised posteriorly, internally and externally, but *not* inferiorly. It is important that the fat for at least half the depth of the kidney be removed. Two sutures, after the manner of Brödel, are now placed at either pole of the kidney at the internal and external borders, the needle being left on each. For the present these are not tied. Two parallel incisions, one and one-half inch in length and one inch apart, are made longitudinally through the renal capsule and the intervening capsule is elevated from the cortex by blunt dissection. The kidney is now returned to its fossa and is held in position by means of gentle traction made by an assistant upon the untied sutures. A strip of the transversalis fascia corresponding in width to the length of the elevated portion of the capsule is cut and passed as a strap beneath it, and is sutured with chromicized catgut to the corresponding portion of the spinal attachment of the fascia. The kidney, thus suspended by a strap of fascia, is further reinforced by passing the Brödel's sutures through the quadratus lumborum in the usual manner and tying them over the muscle. The wound is closed in the orthodox manner. The patient is kept in bed three weeks, until adhesions have formed between the fascia and the capsule and cortex of the kidney.



**Circular Suture of Vessels.**—Dr. H. Yamanouchi (*Deut. Ztschr. f. Chir.*, Bd. 112, Hft. 1-3) states that after transplanting a piece of bloodvessel wall from one person to another the graft undergoes slow destruction, being replaced by other tissues. It has been found that small portions of vessels preserved in physiological saline solution or sterile water for several weeks can be utilized for transplantation.

**Plastic Operations on the Face.**—Dr. J. S. Horsley (*Jour. South Carolina M. A.*, Oct. 1911) says that the principles which might be said to underlie plastic operations of the face are, first of all, a careful mapping out of the procedures necessary to correct the deformity in each case. Asepsis cannot be maintained, and prompt healing will occur only when the tissue is properly nourished and gently handled. Rough handling or lack of consideration for the nutrition of the flaps will result disastrously, no matter how accurately the defect is covered. The flaps should always be taken a little larger than seems necessary, particularly in remedying deformities resulting from burns. No dressing should be placed upon these wounds, unless there is considerable bleeding, when a dry compress may be used for twenty-four hours and should then be removed. The raw surface should be dusted with boric acid powder, which forms a scab, and usually quick healing results.

**Prevention of Complications in Gastro-Intestinal Surgery.**—Dr. D. Guthrie (*Pa. Med. Jour.*, Jan., 1912) considers the following as among the important things in the prevention of these complications. *a.* That the body fluids should be maintained as far as possible, and that the laxative should be castor oil in preference to a saline. Also, that the temperature of the operating room should be at normal room temperature rather than that of a Turkish bath; the amount of body fluids lost during the prolonged operation done in a hot operating room is very great and often does harm. *b.* The anesthetic should be given upon the operating table in the operating room, and the field of operation should be prepared at the same time. This tends greatly to reduce the amount of anesthetic used. The preparation should be simple, one-half strength tincture of iodine or soap and water, Harrington's solution, followed by alcohol. Scrubbing the abdomen, with the bichlorid poultice, the night before and the same technic again before operation has about been discarded, for the plan often excites a dermatitis and encourages wound infection. *c.* In all cases with pyloric obstruction the stomach should be washed out the night before operation and again just before operation. The danger of inspiration pneumonia is thus greatly lessened. It is well, too, to give these patients one-sixth of a grain of morphin one-half an hour before operation. *d.* It is safest not to operate on a patient immediately after a gall-bladder attack in which empyema or common-duct obstruction, with icterus, has resulted. These patients do better when operated upon in the quiescent stage.

**Recurrence of Gastric Ulcer After Gastroenterostomy.**—Dr. F. Fink (*Zentbl. f. Chir.* No. 46, 1911) reports the case of a woman in whom two years after the performance of gastroenterostomy for ulcer of the stomach, during which time she enjoyed good health, a recurrence of symptoms took place, necessitating another operation. This showed that a second ulcer had developed at the site of the former one, which was attributed to the fact that the pyloric opening had not become completely occluded, so that some of the acid gastric contents still passed out into the intestine by this route, with consequent irritation of the previously affected area. Owing to this partial evacuation of the stomach by way of the pylorus the anastomotic opening had become almost completely closed, which in turn favored the formation of another ulcer. At the second operation the ulcerated area was resected and the pyloric orifice completely closed by direct suture. From his observation the author draws the conclusion that when an ulcer is situated near the pylorus and gives rise to only a partial stenosis it is liable to return after operation in consequence of the pylorus regaining its function, and for this reason resection is indicated when such recurrence takes place after gastroenterostomy.

**Scrubbing Ulcers.**—To stimulate healing in chronic varicose ulcers Dr. E. C. Beck (*Med. Rec.*, Dec. 3, 1912) recommends scrubbing with soap and water. The patient is placed on the operating table and deeply anesthetized. All crusts surrounding the ulcer or on any other portion of the leg are removed. An ordinary stiff brush, such as is used by the operator and his assistants for cleansing the hands before operation, is to be thoroughly sterilized. Tincture of green soap and sterile water are all that is necessary. The soap is poured on the ulcer, just enough water to cause a froth, and the scrubbing may begin. At first diseased and spongy tissue comes off in a dark black or grayish mass. A little clean water now and then will wash off the debris and show us how far we have succeeded. Scrubbing should be continued until the base of the ulcer is smooth and the edges stand out clearly, red and hard, giving the whole the appearance of being "punched out." There will be some bleeding, but the bleeding seems to be conducive to quick healing. Strenuous scrubbing of the edges is necessary; it smooths them off sufficiently, and the hyperemia resulting therefrom will show its beneficial results within twenty-four hours, when the little blue line of infant granulations will bring its glad tidings of healthy recovery. Before applying a wet dressing of either boric acid or bichloride solution, the entire ulcer and its immediate vicinity are painted with tincture of iodine to prevent reinfection as much as possible. As a rule when the patient regains consciousness extreme pain will be experienced, and if thought advisable some form of hypnotic may be administered. But if the bandage is kept moist with warm solution the pain and burning are only of short duration.

**Uterine Deviations.**—Dr. G. C. Dickinson (*Long Isl Med. Jour.*, Jan., 1912) thinks that a study of the different operative methods employed in these conditions suggests that uterine rest is the main factor to be obtained. Metritis and its associated parametritis are aggravated and continued by movements of the body—walking or breathing so move the pelvic parts and keep up minor traumatism that congestions continue. Tampons and passaries, which act as temporary splints, and operations that give relief and support, all tend to a recuperation of local tone and a return to normal of vascular changes, but in hysteropexies, as in the treatment of other conditions, we must not forget the individual. We must study her nerve tonus, her susceptibilities, determine whether she is easily affected by pain, and find out the condition of her toxin-destroying organs, intestinal epithelia, liver and internal secretions, paying attention to secondary anemias and the circulation. A woman who has such lowered nerve vitality as to be annoyed by a displaced uterus will have co-existing tissue and functional defects in other organs of the body. Particularly important is it to remember that the sympathetic system is closely associated with the vaso-motor, and that which exhausts the action of the former will also of the latter, and that any type of therapy, drug, hydro-pathic or other, which invigorates and gives tone to the arterial circulation of the pelvis, will tend for betterment.

**New Method of Contracting the Thorax in Pulmonary Tuberculosis and Empyema.**—The method employed for this purpose by Professor Wilms of Heidelberg is described by his assistant, Dr. Kolb, (*Muench. med. Wochensch.*, No. 47, 1911). Incisions, 6 cm. long, are made through the skin of the back over the second, fifth and, if necessary, the seventh rib, in the region of the costal angle. These incisions are extended down through the trapezius and rhomboids in the direction of their fibers. Through the opening over the second rib a piece of bone 3 to 4 cm. long is excised from the first, second and third ribs. Through the opening over the fifth rib portions of the fourth, fifth and sixth rib are removed, and through the opening over the seventh rib any other sections of the lower ribs that may be required. The pleura is not likely to be injured because in the class of cases in which the operation is indicated it is as a rule greatly thickened. If it is necessary to immobilize the anterior thoracic wall a longitudinal incision is made parallel to the sternal border and about 1 to 2 cm. from it. After exposing the costal cartilages, these are divided with bone forceps over their entire extent. In the removal of sections of rib it is important not to impair the functions of the dorsal muscles, especially the trapezius and rhomboid. After resection the ends of the ribs approximate, and a diminution in the size of the thoracic cavity takes place. Wilms' operation was particularly employed in cases of unilateral tuberculosis of an upper lobe and in empyema of one entire chest cavity. It is only indicated, however, when the

lower lobes on the same side and the opposite lung are free from tuberculous foci. Moreover, the tuberculous process should not be in the acute state. In cases of total empyema, this operation is indicated in every instance and is done at one sitting, while if performed for pulmonary tuberculosis it may be carried out in two stages. In the after-treatment the patient is placed upon the side operated on and the chest fixed with strips of adhesive plaster. Recovery is rapid and sometimes astonishingly so. Kolb presents the following conclusions: 1. In cases of unilateral tuberculosis of an upper lobe the effect of Wilms' operation is to secure rest of the affected lung. This is accomplished as thoroughly as by the radical thoraco-plastic methods in a large number of cases, since after removal of small sections of ribs a sufficient contraction of the thorax is obtained. If the posterior resections at the costal angles do not suffice, additional contraction may be secured by division of the costal cartilages. The procedure, however, is contraindicated if the tuberculous process has invaded other lobes, especially the lower ones, and if other organs are involved. It is particularly suitable in cases with chronic indurative tuberculous lesions or cavities with fibrous walls. 2. In total empyema the method causes a rapid obliteration of the upper as well as lower portions of the pus cavity. 3. The risk of subsequent displacement of heart with resulting disturbance of the circulation is extremely small, especially as the operation can be done under local anesthesia. The fixation and collapse of the affected lobe is followed by diminution of the sputum, subsidence of cough, increase of bodily strength and weight, and disappearance of the fever.

**Carcinoma of the Lip, Mouth and Pharynx.**—E. H. Beckman (*Journ.-Lancet*, Jan. 15, 1912) believes that more of the extensive dissections of the neck, called the "block dissection," should be done at an early period in the disease before glandular involvement has taken place. Crile has had four times as many three-year cures in carcinoma of the head and neck since he adopted this procedure. The operation is an extensive one and looks extremely formidable, but in his series of cases it has not proven to be as dangerous as at first thought. During the past three years the author has performed 25 "block dissections" of the neck for malignant disease, two of them being on both sides of the neck, without an operative mortality. Sixteen of these patients were over fifty years of age, and six of them were over sixty. When it is remembered that the patient already has a disease which, sooner or later, will be fatal, it is only justice to him to give him the opportunity of cure which is held out by one of these more extensive operations. If, in making one of these "block dissections," it is necessary to enter the mouth, the mortality will undoubtedly be high on account of the infection carried into the deep tissues of the neck from the mouth. So that it seems preferable, when possible, to divide the operation into two stages, doing the "block dissection" first, and the extirpation of the original cancer at a later period.

**Surgical Aspects of Membranous Pericolicitis.**—

Dr. L. S. Pilcher (*An. of Surg.*, Jan., 1912) states that as a result of his personal observations, together with the experience reported by other surgeons, it has seemed to him that right-sided pericolic adhesions and membraniform crippling veils and bands form a fairly distinct pathological entity deserving of recognition as a well-defined surgical condition. In all cases they are a source of ill health and suffering. In some cases they are a positive menace to life. In most instances they can be relieved by procedures that are attended with a minimum of operative risk.

**Nitrous - Oxid - Oxygen Anesthesia.**—Drs. S.

Leigh and J. H. Culpepper (*Old Domin. Jour. Med. and Surg.*, Oct., 1911), who developed the essentials of their method and the apparatus independently of other workers, and have used it in 700 cases with marked success, assert that the adapting of nitrous oxide with oxygen to practical use marks the greatest advance (with one possible exception) that has been made in surgery in the past fifteen years. Further, they believe that in a very short time this method of anesthesia will be in general use by the profession.

**How Recurrences After Gallstone Operations May Be Avoided or Diminished.**—Professor H.

Kehr (*Muench. med. Wochensh.*, No. 47, 1911) answers this question in the following manner: 1. The physician should refer his cases to the surgeon at an early period and not wait until an operation is no longer able to completely remove the inflammation and restore favorable conditions for the outflow of secretion. 2. The surgeon should operate thoroughly. He should restrict the indications for cholecystostomy as much as possible, and replace choledochotomy with suture by cholecystectomy with drainage of the hepatic duct. The tamponade and drainage should be so arranged that irrigation of the duct, hepaticus and choledochus is still possible at the end of fourteen days. It is necessary to remember that the leaving behind of stones in the cystic duct and more frequently in the choledochus is often the result of a faulty technic in disposal of the stump after cystectomy, the exposure of the hepatic duct and choledochus, and the method of tamponade. Many so-called recurrences may be avoided if greater attention is paid to the details of the technic, as, for instance, the shape and size of the drainage tubes. 3. It is unfortunate that some physicians are still unaware that even in cases of stones in the choledochus (33 per cent. of all cases) icterus is absent, and this should lead the surgeon to inspect the bile passages and to probe or incise them in every cholecystectomy. Operations should not be confined to the gallbladder, but be extended to the ductus choledochus. A simple cystectomy is permissible only in exceptional cases. 4. To prevent false recurrences which may be attributable not only to the biliary passages but to accompanying disease of other organs, it is essential in every gallstone operation to inspect and palpate the duodenum, pylorus, pancreas, appendix vermi-

formis, and where indications call for it, to at once resort to gastroenterostomy, hepatopexy, appendectomy, etc. To obtain permanent results after gallstone operations a sufficiently large abdominal incision should be made. Notwithstanding the most thorough operation, however, recurrences have to be reckoned with in about 10 per cent. of cases. The true recurrences of which so much is said occupy a subordinate place, and chiefly follow conservative methods, while they are practically absent after cystectomies and drainage of the hepatic duct.

**Cardiac Changes Secondary to Uterine Myomata.**—Dr. P. S. Doane (*Surg., Gyn. and Obst.*, Jan.,

1912), from a study of this subject, is led to make the following deductions: That uterine myomata are dangerous growths at all times and demand removal if secondary symptoms are not too aggravated. That too little attention has been paid to the secondary symptoms and that the assistance of the trained specialist is not called upon frequently enough. That if operation be resorted to, it be done with speed. That the anæsthetizer be well trained and informed of any complication. That the heart be carefully watched after the operation.

**Sprain Fracture.**—Drs. G. G. Ross and L. F.

Stewart (*An. of Surg.*, Jan., 1912) advise that the seat of fracture together with the joint nearest the fracture should be immobilized. When carpal or tarsal bones are involved, the wrist or ankle-joint should be immobilized with the smaller joints. Plaster of Paris serves this purpose best in the upper as well as the lower extremity, and rest of the body for absolute rest is essential. Casts should be used for three weeks; at the end of this time moderate motion may be started. Massage should be begun at the end of ten days. In an uncomplicated case, fairly free use of the injured tissues can be allowed at the end of the sixth week. This treatment is arbitrary, and must of course be influenced by the individual case. General relaxation of joints may follow as a result of treatment, if care is not taken to avoid muscular atrophy. Proper treatment gives excellent results, which are permanent. Lack of treatment and treatment as sprain (drug-store treatment) provide many cases of chronic arthritis, deformity, persistent pain, and weakness; excessive callus formation is a common result; non-union, permitting the free bony tissue to catch between joint surfaces, can occur. The authors' conclusions are as follows: 1. History of sufficient injury, with a sharply localized area of swelling and acute tenderness over a region of ligamentous or tendinous attachment, means sprain-fracture. 2. X-ray is not essential for the recognition of sprain-fracture. 3. The external malleolus is probably the most frequent seat of sprain-fracture. 4. About 15 per cent. of all fractures are sprain-fractures. 5. That condition, formerly called severe sprain, is sprain-fracture. 6. The condition resulting from stretching of soft parts is better termed strain. 7. Sprain-fracture is probably a part of the pathology of every dislocation. 8. If in doubt as to whether or not sprain-fracture has occurred, treat as sprain-fracture.

# Monthly Index of Surgery and Gynecology

- Abdominal Section under Spinal Analgesia with or without the Aid of General Anesthesia. With Notes of 65 Cases (Brit. Med. Jour., Dec. 23, 1911). L. McGavin, London.
- Acute Osteomyelitis of the Vertebral Column (Lancet, Dec. 2, 1911). F. Fraser, T. McPherson, Bath.
- Acute Pancreatitis, Surgical Treatment of (An. of Surg., Jan., 1912). W. Körte, Berlin, Germany.
- Appendicitis, a Consideration of the Complications of (Tex. S. Jour. Med., Jan., 1912). J. N. Hall, Denver.
- Arteriovenous Anastomosis in the Treatment of Gangrene of the Extremities (Surg., Gyn. and Obst., Jan., 1912). A. E. Halstead, R. T. Vaughan, Chicago.
- Bier's Hyperemic Treatment (Brit. Med. Jour., Dec. 16, 1911). H. F. Waterhouse, London.
- Brain Decompression (Col. Medic., Jan., 1912). E. F. Root, Salt Lake City.
- Brain Surgery, Technic of (Charl. Med. Jour., Jan., 1912). H. Norris, Rutherfordton, N. C.
- Cesarean Section. A Discussion of the Technique with Report of Eleven Cases (Surg., Gyn. and Obst., Jan., 1912). E. M. Prince, Birmingham, Ala.
- Cancer of the Rectum and its Treatment (Lancet, Dec. 30, 1911). P. Lockhart Mummery, London.
- Cancer, Primary, of the Vagina, with Report of a Case (Tex. S. Jour. Med., Jan., 1912). J. T. Moore, Houston, Tex.
- Carcinoma of the Gastrointestinal Canal (Buf. Med. Jour., Jan., 1912). W. J. Mayo, Rochester, Minn.
- Cardiac Changes, Secondary to Uterine Myomata (Surg., Gyn. and Obst., Jan., 1912). F. S. Doane, Chicago.
- Colitis, Varieties of, and their Diagnosis by Sigmoidoscopic Examination (Brit. Med. Jour., Dec. 30, 1911). P. Lockhart Mummery, London.
- Colonic Intoxication (Am. Jour. Surg., Jan., 1912). J. F. Binnie, Kansas City.
- Complications of Gastrointestinal Surgery, Prevention and Treatment of (Pa. Med. Jour., Jan., 1912). D. Guthrie, Sayre, Pa.
- Congenital Hypertrophic Stenosis of the Pylorus, Surgical Treatment of (Northw. Med., Jan., 1912). R. T. Richards, Salt Lake City.
- Congenital Talipes in Infants, Treatment of (Jour. Tenn. S. M. A., Jan., 1912). R. W. Billington, Nashville.
- Conservation of the Ovary (Can. Med. Assoc. Jour., Jan., 1912). W. W. Chipman.
- Control of Bleeding in Brain Operations (Am. Jour. Surg., Jan., 1912). J. R. Eastman, Indianapolis.
- Drainage of Acute Pleural Empyema in Children (Am. Jour. Surg., Jan., 1912). S. W. Kelley, Cleveland.
- Ectopic Gestation, Significance of Delayed Operation in (Am. Jour. Obst., Jan., 1912). E. Marvel, Atlantic City.
- Ectopic Pregnancy, Treatment of (Am. Jour. Obst., Jan., 1912). C. A. Stillwagen, Pittsburgh.
- Epigastric Hernia, a Cause of Chronic Diarrhea (An. of Surg., Jan., 1912). F. Cobb, Boston.
- Esophagoscopy and Bronchoscopy. Reports of Cases of Foreign Bodies in the Esophagus and Bronchi Operated on by the Kilian Method (Surg., Gyn. and Obst., Jan., 1912). T. Hubbard, Toledo.
- Estimation of Vital Resistance of Patient with Reference to Possibility of Recovery (Pa. Med. Jour., Jan., 1912). J. C. Bloodgood, Baltimore.
- Exophthalmic Goiter, Practical Points in Surgical Treatment of (Am. Jour. Surg., Jan., 1912). A. J. Ochsner, Chicago.
- Exophthalmic Goiter, the Surgical Treatment of (South. Med. Jour., Jan., 1912). G. Torrance, Birmingham, Ala.
- Fibroid Tumors of the Uterus, 57 Consecutive Operations for (Jour. M. A. of Ga., Jan., 1912). E. G. Jones, Atlanta.
- First and Last Kink in Chronic Intestinal Stasis (Lancet, Dec. 2, 1911). W. A. Lane, London.
- Fixation of the Kidney, a New Operation for (N. Y. Med. Jour., Jan. 20, 1912). F. McK. Bell, Ottawa.
- Fracture of the Floor of the Acetabulum (An. of Surg., Jan., 1912). P. G. Skillern, H. K. Pancoast, Philadelphia.
- Fracture of the Sesamoid Bones (An. of Surg., Jan., 1912). G. P. Mueller, Philadelphia.
- Fractures, Operative Treatment of, Based on Operation of Eighty Patients (Am. Jour. Surg., Jan., 1912). W. Bartlett, St. Louis.
- Fractures, Operative Treatment of (N. Y. Med. Jour., Dec. 23, 1911). E. P. Magruder, Washington, D. C.
- Fractures, Repair of, with Steel Splints (Surg., Gyn. and Obst., Jan., 1912). E. H. Beckman, Rochester, Minn.
- Gastrojejunostomy (Am. Jour. Surg., Jan., 1912). W. J. Mayo, Rochester, Minn.
- Goiter, an Analysis of the Last Fifty Cases of, Operated on St. Luke's Hospital (Va. Med. Semi-Mo., Jan. 26, 1912). S. McGuire, Richmond.
- Goiter, the Surgical Treatment of (Med. Rec., Jan. 13, 1912). W. W. Hamilton, Columbus, O.
- Gonorrheal Epididymitis, Operative Treatment of; 68 Cases (Lancet, Jan. 6, 1912). F. R. Hagner, H. G. Fuller, Washington, D. C.
- Graves' Disease, Surgical Aspects of (Am. Jour. Surg., Jan., 1912). G. W. Crile, Cleveland.
- Harelip, the Treatment of (Surg., Gyn. and Obst., Jan., 1912). T. W. Brophy, Chicago.
- How Long Shall Patients be Kept in Bed after Operation? (Pa. Med. Jour., Jan., 1912). R. T. Miller, Pittsburgh.
- Hypospadias, the Treatment of (N. Or. Med. and Surg. Jour., Jan., 1912). F. W. Parkham, New Orleans.
- Ideal Abdominal Incision for Pelvic Surgery in the Female (Jour. A. M. A., Jan. 13, 1912). C. G. Child, Jr., New York.
- Inguinal Hernia in Childhood, the Management of (Med. Rec., Jan. 20, 1912). W. F. Campbell, Brooklyn, N. Y.
- Intraarticular Silk Ligaments for Fixation of Loose Joints in the Residual Paralysis of Anterior Poliomyelitis (Buf. Med. Jour., Jan., 1912). B. Bartow, W. W. Plummer, Buffalo.
- Intravenous General Anesthesia (Bost. M. and S. Jour., Dec. 26, 1911). A. M. Dodge, Boston.
- Iodin Methods of Skin Sterilization, the History of (Am. Jour. Obst., Jan., 1912). J. E. Cannaday, Charleston, W. Va.
- Knee-Joint Amputations, Report of a New Method (Jour. A. M. A., Jan. 6, 1912). C. E. Phillips, Ancon, Canal Zone.
- Lateral Curvature of the Spine, a Point in the Treatment of (Jour. A. M. A., Dec. 30, 1911). E. A. Rich, Portland, Ore.
- Lymphatics of the Scrotum in Relation to the Radical Operation for Scrotal Epithelioma (Lancet, Dec. 2, 1911). J. Morley, Manchester.
- Membranous Pericollitis, Surgical Aspects of (An. of Surg., Jan., 1912). L. S. Pilcher, Brooklyn, N. Y.
- Multiple Glandular Tumors, Treatment of (Med. Rec., Dec. 23, 1912). R. H. Boggs, Pittsburgh.
- Nephropey (Am. Jour. Surg., Jan., 1912). J. H. Carstens, Detroit.
- Papilloma of the Bladder Treated by the Oudin or High Frequency Current, a Preliminary Report of (Am. Jour. Dermat., Jan., 1912). J. A. Gardner, Buffalo.
- Paralysis of Children, Certain Operative Procedures in (Brit. Med. Jour., Dec. 9, 1911). R. Jones, Liverpool.
- Permanent Suprapubic Drainage of the Bladder Without Leakage; Report of a Case (Cal. S. Jour. Med., Jan., 1912). H. Meyer, San Francisco.
- Popliteal Incision for Removal of "Joint Mice" in the Posterior Capsule of the Knee-Joint (Bost. M. and S. Jour., Dec. 28, 1911). E. G. Brackett, R. B. Osgood, Boston.
- Postoperative Treatment of General Suppurative Peritonitis (Med. Rec., Jan. 6, 1912). A. Judd, New York.
- Prevention of Postoperative Gynecologic Psychoses (Jour. A. M. A., Jan. 13, 1912). R. P. Cole, Mobile, Ala.
- Prostatectomy, the Indications for, and the Advantages of the Suprapubic Method (N. Y. Med. Jour., Jan. 20, 1912). J. A. Gardner, Buffalo.
- Prostatectomy, the Technic of (Atl. Jour.-Rec. Med., Jan., 1912). E. G. Ballenger, O. F. Elder, Atlanta.
- Prostatic Dysuria, the Choice of Operation for the Relief of, and the Preliminary Treatment Indicated (Jour. Mich. S. M. S., Jan., 1912). P. M. Pilcher, Brooklyn.
- Radium in Malignant Disease and Varicose Ulceration (Brit. Med. Jour., Dec. 9, 1911). T. R. MacDonald.
- Relation of Gastrocolic Displacements to Certain Intrapelvic Conditions in Women (Am. Jour. Obst., Jan., 1912). C. L. L. Reed, Cincinnati.
- Renal and Ureteral Calculi, Some Common Errors in the Diagnosis of (Am. Jour. Urol., Jan., 1912). H. Cabot, Boston.
- Renal Tuberculosis, the Early Diagnosis of, and its Treatment (Am. Jour. Dermat., Jan., 1912). H. D. Lewis, Baltimore.
- Richter's Hernia (Surg., Gyn. and Obst., Jan., 1912). C. S. White, Washington, D. C.
- Spinal Anesthesia, the Routine Use of. A Study of 500 Consecutive Cases (Brit. Med. Jour., Dec. 23, 1911). O. Richards, Cairo, Egypt.
- Sprain-Fracture, a Study of (An. of Surg., Jan., 1912). G. G. Ross, L. F. Stewart, Philadelphia.
- Sterility in Women (N. Y. Med. Jour., Dec. 23 and 30, 1912). E. McDonald, New York.
- Strangulated Femoral Hernia (Jour. A. M. A., Jan. 20, 1912). J. Douglas, New York.
- Subcutaneous Extirpation of Cervical Glands (Ill. Med. Jour., Jan., 1912). J. Frank, Chicago.
- Suction Drainage in Bladder Diseases (Am. Jour. Dermat., Jan., 1912). N. G. Bozeman, New York.
- Surgery of the Abdominal Wall (Brit. Med. Jour., Dec. 9, 1911). Sir A. P. Gould, London.
- Surgical Tuberculosis, the Treatment of (N. Y. S. Jour. Med., Jan., 1912). J. A. Macleod, Buffalo.
- Synchronous Ligation of Subclavian and Carotid for Aneurism of Innominate. Report of a Successful Case with New Technic (Jour. A. M. A., Jan. 13, 1912). J. F. Baldwin, Columbus, O.
- Tetanus; Seven Cases with Recoveries (N. Y. Med. Jour., Dec. 23, 1911). P. Kintzing, Baltimore.
- Thermo-cautery and Radium as Palliative Measures in Uterine Cancer (N. Y. S. Jour. Med., Jan., 1912). W. B. Chase, Brooklyn, N. Y.
- Thyroid, Diseases of the (Jour. Mich. S. M. S., Jan., 1912). C. H. Mayo, Rochester, Minn.
- Transplantation of the Cord in Operations for Hernia (Med. Rec., Dec. 30, 1911). A. V. Moschowitz, New York.
- Trunk Anesthesia (Med. Rec., Dec. 30, 1911). B. Holmes, Chicago.
- Tubercular Knee Affections, Operative Measures for (Bost. M. and S. Jour., Jan. 11, 1912). H. W. Marshall, Boston.
- Two Rubber Drainage Tubes, with a Single Stab Wound Exit, in Abdominal Surgery (Jour. A. M. A., Dec. 23, 1911). P. A. Harris, Paterson, N. J.
- Uterine Cancer, Operability of (Jour. Mo. S. M. A., Jan., 1912). F. J. Taussig, St. Louis.
- Uterine Myoma. Personal Observations in the Study of 140 Consecutive Operations (Jour. A. M. A., Dec. 23, 1911). W. B. Dorsett, St. Louis.
- Vein to Vein Transfusion for Anemia Due to Hemorrhage Caused by Disease of or Injury to Intraabdominal Organs (Pa. Med. Jour., Jan., 1912). G. M. Dorrance, N. Ginsberg, Phila.
- Venopertoneostomy for Relief of Ascites, Improved Technic of (Jour. A. M. A., Dec. 30, 1912). H. E. Castle, San Francisco.
- What Can be Done to Preserve the Strength of Surgical Patients During their Stay in Bed (Pa. Med. Jour., Jan., 1912). J. M. Baldy, Philadelphia.
- Wounds, Treatment of, with Reference to Tetanus Prophylaxis (Jour. A. M. A., Jan. 13, 1912). O. Berghausen, C. E. Howard, Cincinnati.
- Wrist-drop and Allied Conditions, an Operation for the Relief of (Surg., Gyn. and Obst., Jan., 1912). T. G. Davis, T. G. Finley, Los Angeles.

**SPECIAL**

# DISEASES OF THE DIGESTIVE TRACT

**NUMBER**

## INTERSTATE MEDICAL JOURNAL MARCH, 1912

In harmony with the policy of publishing "Symposium Numbers," at intervals, on timely subjects, the Editors of the INTERSTATE MEDICAL JOURNAL have outlined a number on "Diseases of the Digestive Tract" for March, 1912.

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| The X-Ray in the Diagnosis of Gastro-Intestinal Diseases,                        | LUDWIG KAST, M.D., New York.        |
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| The Diagnosis of Cancer of the Stomach,  | J. W. WEINSTEIN, M.D., New York.    |
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(Critical Editorial Reviews of Recent Literature in Collective Form.)

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| Recent Surgery of Stomach and Intestines,  | M. B. CLOPTON, M.D., of the Editorial Staff.     |
| Enteroptosis and the Enteroptotic Habitus, | JESSE S. MYER, M.D., of the Editorial Staff.     |

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# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

MARCH, 1912

No. 3

## Original Articles

### GASTROENTEROSTOMY AND THE GASTRIC FUNCTION.\*

By WILLIAM FRANCIS CAMPBELL, M.D.

*Professor of Anatomy, Long Island College Hospital; Surgeon-in-Chief, Trinity Hospital, Brooklyn, N. Y.*

True advance in surgery is along the line of conservation—conservation of structure and of function. Progress in the past has been marked by refinement of anatomic detail; at the present it must receive a fresh impetus by recognizing and correlating the new physiology and the vast possibilities it suggests to the clinical surgeon.

The immediate beneficence of gastroenterostomy is well established; the technic of the operation has been so perfected that the procedure is safe and the immediate results satisfactory. These questions are settled. Those who follow their cases, however, are not always satisfied with the remote effects, nor are all patients permanently benefited. When our patients return several months after operation complaining of periodic vomiting of bile colored fluid or gastric distress after each meal, with real disability and impaired nutrition, the elation of the primary success is somewhat dampened by unexpected remote complications and the embarrassment of not knowing what to do next. A study of the gastric function in the light of modern physiology and the modification of the function by the establishment of a new exit for the stomach contents may assist in forming a correct estimate of the real value of gastroenterostomy and the indications which justify its employment. It is fairly questionable whether gastroenterostomy can ever become an ideal operation from a functional standpoint. Its purpose is to short-circuit the upper portion of the intestinal tube so that the gastric contents pass directly into the jejunum instead of traversing the pylorus and duodenum. Is the purpose always successful and what are the causes of defeat?

First, consider the size and shape of the normal stomach. In the study of one hundred apparently normal stomachs we are convinced that there is no organ of the body that shows such variations. The vertical diameter of our specimens varied from four to fourteen inches, while the shape, though likewise variable, could be grouped according to certain types of which we shall speak later. The common conception of the shape of the stomach is that of the text-book picture; there has been too little appreciation of the great variety of form and the individual peculiarities which each case presents. It is evident that the form of the stomach cannot be demonstrated through a three or four inch incision. The older text-books represented the stomach as in Fig. 1, the lesser curvature above, the greater



Fig. 1

curvature below, and the long diameter horizontal. The newer text-books represent the stomach as in Fig. 2; the lesser curvature to the right, the greater

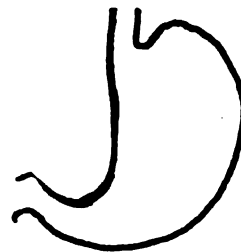


Fig. 2.

to the left, the long diameter vertical. A composite picture of our one hundred specimens indicates that the long diameter of the stomach is slightly oblique,

\* Read before the Brooklyn Surgical Society, February 1, 1912.

extending downward from left to right as in Fig. 3. It will also be noted later that this form is more nearly in accord with its structure and function.

*Second:* The stomach is structurally and functionally an organ with a twofold purpose. First, it is to receive the food as a reservoir; second, it is

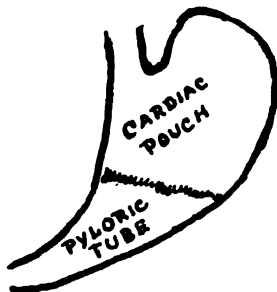


Fig. 3.

to triturate the food and prepare it for intestinal digestion.

This twofold function is plainly marked in its structure, for about the middle of the body there is a distinct line of demarcation observed in the thickness of the stomach wall; above this line the wall is comparatively thin and forms the *cardiac pouch*, below this line and extending to the pylorus the wall is thickened and forms the *pyloric tube* (see Fig. 3); not only this but the mucosa, while comparatively smooth in the cardiac pouch, is thrown into deep folds where it lines the pyloric tube. This division of the stomach into a cardiac pouch for storage and a pyloric tube for trituration

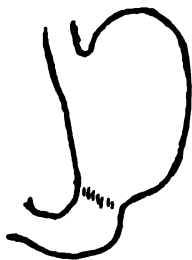


Fig. 4.

exactly corresponds with the twofold gastric function.

*Third:* While the cardiac pouch is passive, simply maintaining sufficient tonic contraction to slowly push the food into the pyloric tube, the latter is active in churning the food and mixing it with

the gastric juices. This is accomplished by the peristaltic waves impelling the food toward a closed pylorus, which, we shall see later, automatically opens at intervals to discharge small jets of chyme into the duodenum.

Thus it is evident that the passive cardiac pouch and the active pyloric tube are of considerable significance in any operation which seeks to modify the gastric function. This adaptation of structure to function is well demonstrated in the types of stomach which we have observed. In Fig. 4, the

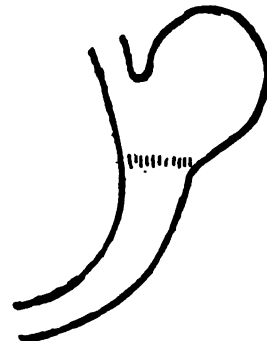


Fig. 5.

cardiac pouch is large and the pyloric tube proportionately small; in Fig. 5, the conditions are reversed; while Fig. 6 represents the composite type. In all of our specimens these two physiologically

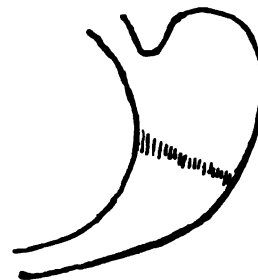


Fig. 6.

distinct regions were indicated by a slight constriction with a thickening of the muscular fibers—a sort of "circular muscle" which is probably an active factor in separating the two portions. When the "circular muscle" is highly developed a distinct constriction is found at the junction of the two regions, and there results an hour-glass type of stomach, as shown in Figs. 7, 8 and 9—a type by no means rare. Ten per cent. of our series show such constriction. The smallest constricting ring admitted the index finger. It will be recalled that



this is the normal arrangement in certain rodents and other animals. Whether this is a reversion to type or a perversion of function is a matter of conjecture.

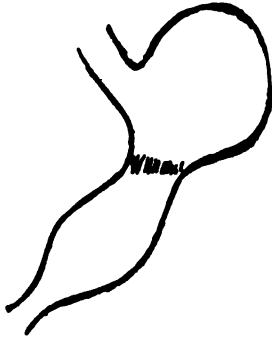


Fig. 7.

*Fourth:* The erroneous conception which has prevailed that the stomach empties by gravity-drainage has done much to begot the real value of gastro-

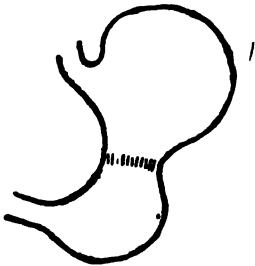


Fig. 8.

enterostomy. Neither the stomach nor any portion of the intestinal tube, whether through natural channels or artificial openings, is emptied by gravity-

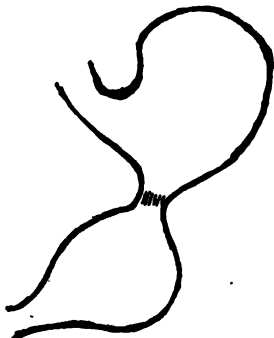


Fig. 9.

drainage. Cannon has shown that "when the body is in the upright position and a large artificial opening connects the stomach and the intestine, water

will not run out; gravity can have no effect because of the hydrostatic relations in the abdomen. In order that food may move onward through the alimentary canal, muscular contraction is necessary to create a difference of pressure."

The emptying of the stomach is effected by one of the most remarkable automatisms in the body. The pylorus is a true sphincter; as its name implies it is "the keeper of the gate." It is essential to appreciate the action of the pyloric sphincter in order to understand that "the stomach is emptied gradually during the course of gastric digestion and not suddenly at the end," as is often surmised. While the pyloric sphincter is closed tightly as the food is churned in the pyloric tube, it occasionally relaxes to permit a discharge into the duodenum. Thus the relaxation and closure of the pylorus are intermittent.

This intermittent discharge due to the relaxation and closure of the pylorus Cannon has shown is governed by a law known as the "Acid control of the pylorus," which may be formulated as follows: *Acid on the gastric side relaxes the pylorus, acid on the duodenal side closes the pylorus.* Thus it is the action of acid on the two sides of the pylorus which produces alternate relaxation and contraction of the sphincter. Thus is explained the phenomena of hyperchlorhydria causing a retardation of gastric discharge, stasis, and dilatation. The hyperacid contents on the duodenal side hold the pylorus closed for a longer period, since it takes a longer time for the pancreatic secretion to neutralize it and thus bring about relaxation. *Hyperacidity means physiological pyloric stenosis.* Correction of the hyperacidity relieves stasis and gastric dilatation.

In view of the foregoing facts, what effect upon the gastric function is produced by making an artificial opening to short-circuit the gastric contents as in gastroenterostomy?

First and most important is the physiological fact that when no obstruction exists in the pylorus none of the gastric contents is transmitted through a gastroenterostomy opening. The stomach is not a passive pouch, nor does an artificial opening at the most dependent point imply gravity-drainage. Neither the stomach nor any other portion of the gastrointestinal tube is affected by gravity-drainage. A consideration of the hydrostatic conditions in the abdominal cavity demonstrates that gravity-drainage is impossible. The gastrointestinal content does not move forward unless the pressure is greater on one side than on the other (Cannon). Experiment shows that if the pylorus is patent and an artificial

opening is made, food makes its natural exit through the pylorus. Not only this, but when the stomach wall is stretched by a large quantity of ingesta, the food is not forced through the artificial opening; on the contrary, as the edges of the artificial opening are stretched apart, the attached intestine is flattened and drawn across the opening, thus forming a cover for the aperture and becoming practically a part of the gastric wall (Fig. 10).

Gastroenterostomy, therefore, in the presence of an unobstructed pylorus is futile.

It is evident, therefore, that gastroenterostomy is to be performed only in the presence of a demonstrable lesion or evidence of stenosis. Even in cases presenting a typical history of gastric lesion it is not wise to propose a gastroenterostomy as the only means of cure. Symptoms of severe gastric disease may often be explained by exploring the appendix and gallbladder. A gastroenterostomy must presuppose a gastric lesion and not merely gastric symptoms. A few years since a prominent woman of this borough was seen by the author and a diagnosis of duodenal ulcer promptly made. Elaborate preparations were made for a gastroenterostomy which at that time seemed a formidable procedure. The patient and the family were carefully drilled in the technic of this operation. When the abdomen was opened there was no demonstrable gastric lesion. The cause of the symptoms was found in a chronic appendicitis.

Again, the instructions given to make the opening in the most dependent part of the stomach mean nothing; dependency of the aperture has no effect upon its efficiency. The aperture should be placed in the pyloric tube near the pylorus where the fluidity of the food and the mechanical pressure is greatest. Many of the distressing symptoms from kinking which sometimes follow this operation will be avoided if two or three inches of both the proximal and distal loops of the intestine are sutured to the stomach wall.

394 Clinton Ave.

In applying adhesive plaster directly to the skin I take pains to shave the hair. I am sure that this rule is not generally observed—a breach that causes the patient acute suffering upon removal, owing to the rich nerve supply of the hair follicles. Where the hair grows out thick and stubby, as from the scalp and beard, the part must be shaved or the plaster will not adhere. Such brutal depilation causes the patient to complain bitterly, and leaves minute wounds of the hair follicles, which invite bacteria and may result in furuncles.—*Dr. P. G. Skilern, Jr., (Pa. Med. Jour., Sept., 1911).*

## A UNIQUE CASE OF KNEE-JOINT SURGERY—COMPOUND FRACTURE WITH DELAYED UNION.\*

By WILLIAM C. DUGAN, M.D., Louisville, Ky.

*Professor of Surgery and of Clinical Surgery in the University of Louisville, Medical Department.*

Gentlemen: The patient to be brought before you is a male, aged twenty years, a circus performer, who was admitted to the hospital two months ago with a fracture of the right femur in the upper third. His leg had remained flexed until there had developed a false ankylosis of the knee-joint in the flexed position so that he was barely able to walk.

It will be recalled that a few days ago, with my consent, Drs. Parsons and Bailey undertook (with the patient under anesthesia) to break the adhesions. These gentlemen stated at the time that they could feel the adhesions yielding under gentle manipulation, showing that they had not become firmly organized. However, to their great astonishment, it appears that an extremely unusual accident occurred during their manipulations, i. e., the aponeurosis of the quadriceps extensor muscle was torn loose from the patella along with a thin piece of the bone.

The patient now has quite an extensive effusion into the knee-joint, which, from the history, we think is a blood clot. He has suffered the most excruciating pain for forty-eight hours, and to afford relief it is now proposed to open the joint, remove the blood clot by thorough irrigation, and suture the aponeurosis. It may be that the aponeurosis is torn in such manner that it cannot be sutured, but this cannot be definitely determined until the parts have been exposed. Even if there be complete separation of the aponeurosis, it is believed that it can be united by suturing, with a reasonable prospect of securing future function of the knee-joint. This is one of the unfortunate cases that we dislike to treat. However, the patient was practically a cripple and it was thought benefit might accrue from breaking up the adhesions.

In opening the knee-joint, it must be remembered there is considerably more risk of infection and the development of sepsis than after the performance of celiotomy. The peritoneum, which is nothing more than a large lymph sac, seems able to take care of septic material in far greater degree than any of the joints. The knee-joint above all is the one we dread the most, but if we are careful in the operation and our technic is faultless, no fear need be entertained of infection from without.

\* Clinical lecture delivered at Louisville City Hospital.

This boy is under the age of twenty-one years which further complicates matters. We dislike to operate upon a patient under the legal age without consent of the parents, or, in case they are dead, of the guardian. However, this boy does not live in Louisville, he merely stopped here for treatment when the circus passed through, he is suffering intensely, there is no time to communicate with his parents, and we must do something promptly to give him the necessary relief. The operation, therefore, is in the nature of an emergency. It has been decided in the higher courts, as I am advised, that an emergency in surgery shall be met regardless of the consent of parents; likewise in case a wife is injured and the surgeon cannot await consent of the husband. However, in every instance where practicable it is advisable to obtain consent of the family before proceeding with the performance of any serious surgical operation, and this even in an emergency case where the patient is perfectly rational.

In suturing the aponeurosis, either chromicized catgut (twenty or forty day), kangaroo tendon, or silver wire may be employed, preferably the two first since the last will often have to be removed. Sometimes celluloid yarn is used, but this is open to the same objection as silver wire, i. e., it has to be removed from the tissues. However, where placed so near the skin as in this case, removal of non-absorbable sutures is not a very serious matter. Of course any non-absorbable suture acts as a foreign body, and after serving its purpose must necessarily be removed, or it may become encysted.

It may be interesting to note in connection with the accident which happened in this case, that I have seen the humerus broken by an attempt to separate adhesions at the shoulder-joint, and in another instance where the surgeon undertook to reduce an old shoulder-joint dislocation. The hip has also been fractured in the same way, but this is the first case I have ever observed where the patella was fractured, or the aponeurosis torn loose, in an attempt to overcome a false ankylosis of the knee-joint.

As the patient is now anesthetized, I wish you would observe the size and shape of the knee-joint. The swelling is considerable and feels elastic like a tumor. We first thoroughly paint the skin for a considerable distance above and below the knee with a preparation composed principally of tincture of iodine, which is pronounced by some surgeons to be an excellent method of sterilizing the field of operation. It has not been tried long enough for anyone to predict what the ultimate conclusion will be concerning the advisability of its employment, but so far

we have observed no good reason for not recommending and using it. This preparation is applied without previous washing or scrubbing of the skin, since soap defeats the object sought to be obtained by use of the iodine.

A curved incision is made, beginning above the patella, and attention is called to the extensive bruising and ecchymosis of the tissues through which the knife passes. The flap being dissected free to the aponeurosis and reflected downward, will permit us to ascertain the character and extent of the rupture. We can now observe that where the tear occurred the patella is entirely detached from the aponeurosis, and the joint is filled with a large blood clot. We will practice thorough irrigation with saline solution, thus removing all the clot. The aponeurosis is completely torn away from the upper margin of the patella together with a thin fragment of bone about one-sixteenth of an inch in thickness. We find it will be necessary to drill the patella, since we shall be unable to pass the needle through it as we had hoped, and the parts will then be brought together with sutures. We have applied three sutures, and you can see that the parts are in good position. The aponeurosis particularly should be carefully united, as this is really of more importance than wiring or otherwise bringing together the bone fragments. At the upper part of the synovial pouch the finger passes into another rent, like a button-hole, which is also filled with clotted blood. The synovial membrane is markedly edematous. There is no sign of any adhesions about the joint, so the only way we can account for this rupture is structural change in the muscle. The torn aponeurosis will be sutured with chromicized catgut, as were the bone fragments.

In the application of these sutures care must be exercised not to break the needle. Not long ago a lawsuit was instituted against a prominent surgeon as a result of leaving a portion of a broken needle in the tissues after the performance of a Matas operation for an aneurism. Just as the surgeon was finishing his operation, a long needle broke, a portion thereof remaining in the tissues, and it was discussed pro and con whether he should reopen the wound and remove the needle, or permit it to remain. After the operation was completed and the patient became conscious it was explained to him that the needle had broken, and that it had been decided by all present that it was best not to reopen the wound at that time to accomplish its removal. Later it seems the patient decided that the surgeon had the most money and conceived the idea of forcing him to

divide; therefore suit was brought and judgment secured in the sum of five thousand dollars against the defendant!

We have used twenty-day chromicized catgut for suture of the patella, and the aponeurosis will be united with similar material. As already suggested, suture of the aponeurosis is by far the most important step in the operation. The interior suturing now having been completed, the result thus far may be observed. It was necessary to slit the muscle and fascia above rather extensively to obtain free access to the deeper tissues. Before closing the external wound we will again thoroughly irrigate the operative field, and then place the drainage tube in proper position.

In this connection, it may not be uninteresting to refer briefly to an accident which happened a few years ago wherein a member of the Louisville baseball team received a severe knee injury. While making a desperate effort to "get home" after a "short ball" he fell and sustained an injury to his knee which was promptly followed by hemorrhage, just as occurred in the case before us. Pain became so intense that the only hope of relief was to incise the knee-joint. The operation was (unwisely) performed in his room at one of the hotels, but the result proved to be as good as could have been obtained in the best equipped hospital. Of course the man was rendered unfit for duty as a ball player the balance of that season, but during the following year he did the best work of his professional career. This case is merely mentioned to illustrate the favorable outcome of a severe injury to the knee, but by no means should it be expected similar results will accrue in all cases. It is advisable to be guarded in prognosticating what may be the ultimate outcome of all surgical operations of this kind.

The skin wound has now been closed by interrupted sutures, and the finished operation may be observed. We employed three heavy chromicized (twenty-day) catgut sutures in the patella, passed them out close to the under edge, then carried them above the thin layer of bone constituting the upper fragment, bringing the bones in good apposition before tying the sutures. In closing the skin incision good coaptation has been secured by using four interrupted sutures. The drainage tube having been introduced is anchored by a suture in the lower angle of the wound. This is done for the purpose of preventing the tube from slipping out or in, as the case may be, which would most likely otherwise occur. In Prof. Jacobi's clinic in Bellevue Hospital some years ago an assistant neglected to anchor the

drainage tube to the chest wall in operating for suppurative pleuritis, and as a result it slipped into the pleural cavity, which caused considerable unfavorable criticism.

The dressings have been so applied around the drainage tube that they will not need to be changed for the removal of the tube which can be done in from twelve to thirty-six hours. The patient will be carefully watched, and the dressings will not be disturbed until the end of a week unless in the meantime some condition develops demanding it.

If this patient had merely sprained his knee, had there occurred no laceration or tearing of the ligaments, nor hemorrhage resulting in blood clot, treatment would naturally have been decidedly different. In other words, the method of procedure would have depended entirely upon the condition present and the amount of discomfort experienced. Under such circumstances the patient could have been made comfortable by the application of ice or a firm compress, allowing the joint to remain undisturbed. However, in this case the pain became so severe, the tumefaction was so sudden and so extensive, that it was evident that there had occurred either a rupture of the patella or, at least, of the aponeurosis, and therefore the open operation was imperatively demanded to afford immediate relief. Incision and drainage, with closure of the ruptured aponeurosis, constituted the most rational method of procedure under the circumstances.†

The next patient is a poorly nourished, anemic, colored man of forty, who was admitted to the hospital with a compound, comminuted fracture of the right leg about two inches above the ankle. While at work on the street, a steam roller ran over his leg, both bones being broken into several pieces. The accident occurred four weeks ago, and thus far union between the fragments has not taken place.

The patient is now brought before us that we may determine what additional steps if any are necessary in the matter of treatment. Examination shows non-union of the bony fragments, and there is considerable over-riding or overlapping of the ends of the bones.

It must be remembered, in this connection, that delayed union does not by any means signify an "united fracture" (false joint). It is a mistake to employ these two terms synonymously, as their

† This operation was performed on November 15, 1911. The young man has done well, there having been no infection. Pain was completely relieved. He is walking all over the hospital on crutches. He still has a plaster dressing on the leg. Motion in the knee-joint good. Explanatory note dated December 1, 1911. W. C. D.

meaning is not the same. In delayed union, failure of the fractured bones to unite is the result of some local or systemic condition. The ends of the bone have not become smooth, rounded off and hard, and the medullary canal remains open to the end of each fragment. Even in oblique fracture the ends of the bone are only somewhat smoothed off, the medullary canal has undergone but little change, and there is no apparent alteration in the periosteum. That is the condition known as delayed union, in contradistinction to ununited fracture, which is only another name for false joint, or pseudarthrosis, the pathology of which presents an entirely different picture. In addition to the ends of the bone becoming rounded and smooth, the medullary canal is sealed at the ends of the fragments. Surrounding the false joint there occurs a ligamentous formation, the periosteum becomes thickened, the osteogenic or reproductive layer is destroyed, the periosteum simply serving the purpose of a ligament. Bursæ also develop about the false point of motion, which contain a fluid in appearance not unlike synovia.

To recapitulate: In delayed union, the medullary canal remains practically unchanged, the end of the bone is somewhat smoothed off, the periosteum remains normal, i. e., does not become ligamentous, there are no bursæ, synovial membrane nor fluid; whereas in ununited fracture, or false joint, the end of the bone is smooth and rounded, the medullary canal is sealed, bursæ are formed which serve as synovial membrane and secrete a kind of synovia, the end of the bone resembling a healed amputation stump.

The first requisite in the treatment of delayed union is to ascertain the cause. If fracture occurs in a patient below par in general health, or in a woman during lactation, or in a person poorly fed, or who is at the time suffering from some debilitating constitutional disease, such as tuberculosis, cancer, rheumatism, gout, some nervous disease, syphilis, any of the infectious diseases, etc., or where the ends of the bones are not in good position, or where there has been too much motion of the fragments, or again where some soft tissue is caught between the ends of the bones, etc., it will be found that after the patient recovers the broken bones will unite about as well as if no delay had occurred, provided the local or general condition responsible for non-union can be and is removed. Surgical intervention is unnecessary unless it appears that a part of the periosteum, a tendon, a section of muscle, or nerve, is between the frag-

ments, or where these so over-ride each other that the fractured ends do not come in contact. Under such circumstances as a matter of course the ends of the bone cannot unite until the causative factor in each individual case is removed. Therefore, in delayed union ascertain and remove the cause if possible, after which the prognosis is good.

In ununited fracture the chances are that if surgery be invoked, failure to secure union will most likely be the result. Therefore, do not criticise a brother practitioner because he fails to secure union in such a case, since the same patient may later apply to you for treatment, and whatever action you may take the result may be even worse than before.

There are several methods in common use which have for their object the securing of union in ununited fractures. One is to inject at the site of fracture the tincture of iodine, carbolic acid, or some other irritating substance. Another is to forcibly rub the ends of the fractured bone together until true crepitus is obtained, in the hope of inducing exudation of blood serum and thus stimulating the formation of the requisite callus. If the bones still remain ununited and the patient objects to operative treatment, remove all dressings, put him on crutches in fractures of the lower limbs, and insist on his walking about. This is known as the ambulatory treatment. In the yards of some of the large eastern hospitals it is not unusual to see a number of patients with ununited fractures of the leg walking about in this way. In fractures of the arm the dressing is likewise removed, and the patient is instructed to "let the arm swing." Some remarkably good results have been secured by these methods of treatment after the more active measures have failed.

If all these plans fail, the final treatment is to make a free incision and expose the ends of the bone, and with a saw or otherwise remove a section from each sufficiently long to expose the healthy medullary canal; then fasten the fragments together with wire or other suitable suture material. Some surgeons utilize metal or bone plates, which is a rather popular procedure just at this time.

Another plan, instead of bringing the freshened ends of the bone together, is to make a joint such as carpenters use in splicing timber for a plate in building, which affords a more extensive surface of freshened bone for future union. To maintain apposition and keep the ends of the bone firmly together, nails, screws, or plates may be employed. However, contrary to the generally accepted opinion, about the only purpose that nails, wire or screws serve is to keep the bone ends in correct apposition

until the dressing is applied. After the nails or screws have remained for a few days, they can be withdrawn like a loose tooth! Therefore, the primary object of nails, screws and other metal driven into the bone is simply to insure apposition until completion of the dressing. There is a secondary purpose, however, which it may be well to mention, i. e., to induce the circulation of a greater amount of blood through the parts, which favors callus formation. Serums and animal extracts have been used, but this method of treatment is only mentioned in passing.

To summarize: In delayed union, satisfactory results may be obtained by removal of the cause; but ununited fracture is a very different proposition. Good surgeons have been known to operate for supposed ununited fracture, where the ends of the bone were not rounded, nor was the medullary canal obliterated. These were simply cases of delayed union, and if the operation proved successful, the procedure was reported as a cure for ununited fracture!

In operating for ununited fracture, where it is desired to fasten the bones together by means of some metal substance, it seems that wire of silver or gold is less likely to cause future trouble than iron or steel, and is therefore preferable.

In the case before us both bones of the leg are broken, one apparently on a higher plane than the other. Little attention need be devoted to the fibula unless apposition of the fragments of the tibia cannot be accomplished without dealing with that bone.

After carefully examining this patient, we have decided to try the method of irritating the bone fragments by rubbing them together, instead of the more serious operation of sawing off their ends and wiring them. They will be rubbed together until the ends of the bones are so freshened and exposed that true crepitus is obtained. It would hardly seem justifiable at this time to cut down upon the fracture and attempt to wire the fragments together. It must be remembered that it has only been four weeks since the bones were broken, and the failure of union may be because it was a bad compound fracture, along with the fact that the ends of the bones are not in good apposition.

We have, therefore, given this man the benefit of the less serious method of treatment. We have rubbed the bones together vigorously in the hope of securing considerable effusion about the fracture, together with an abundance of exudative material which will assist in accomplishing repair. Those of you near by can hear the crepitation as we rub the

bones, which shows that the fragments are together and the freshened surface reduced to the condition it was in immediately after the accident.

While some shortening is to be expected on account of the extent of the fracture, that is regarded of no particular importance provided good union can be secured. Even if the bones overlap three-fourths of an inch, it is of little consequence in such a fracture as this was. To cut down upon the fracture and wire the fragments would probably entail sacrificing that much of the bone, therefore shortening to that extent is unavoidable under any plan of treatment in such cases.

It must be remembered that in a false joint, there being a more or less permanent interruption of the continuity of the bone, a soft or false crepitus is produced when the ends are rubbed together. In delayed union, however, as in the case before us, where nothing intervenes between the ends of the bone, there is produced a harsh, grating sound, i. e., true crepitus, after they are thoroughly rubbed, but less harsh than in recent fracture.

After application of the customary dressing, this patient will be put to bed, absolute rest will be enjoined, and other treatment applicable to ordinary fracture instituted. As already suggested, possibly one reason why union has been delayed is because the fracture is compound. We will keep the patient in bed, and give him iodide of potassium, tonics, and feed him well to make good blood and good callus. It has been demonstrated experimentally in the case of rabbits with broken bones, that if some of them were given phosphorus, while to others none was administered, in the former more firm and prompt union of the bones was secured. Therefore, the drug seems indicated, and by phosphorus is meant not dilute phosphoric acid, but a fresh preparation of the drug.

Before applying the dressing we will paint the surface of the patient's leg, some distance each way from the point of fracture, with the iodine preparation previously mentioned, with the idea of preventing infection from without. The leg will then be dressed just as would be done in an ordinary fracture.

The question has been asked, if we were to place this patient's leg in plaster-of-Paris, how much cotton would be first applied? The only material I would use under the plaster would be a flannel bandage, or a thin layer of lamb's wool. If a large quantity of cotton were to be placed underneath the plaster, then if the man became restless and moved about freely in bed, in a short time the heat

and moisture would cause the cotton to become matted together, and the dressing would be loose like an old boot and his foot and leg could be moved up-and-down therein. That is one of the objections to using plaster as a primary dressing, where swelling is almost always present, unless it be changed within ten days. It would become loose, and displacement of the fragments would most likely occur as a consequence. Therefore, if plaster is used as a primary dressing for fracture, it should be removed in a few days and the parts carefully examined to be sure that the bones are in apposition. To secure the best results, it should be applied over a thin bandage, or it may be placed directly against the skin, using vaseline freely to prevent the hair sticking to the plaster. If the patient's foot becomes cold, showing that the circulation is being interfered with, or if there is much pain and swelling, the dressing should be removed, unless elevation of the limb relieves the congestion and swelling.

If any of you are called to the country to treat a patient with fracture, unless you have a competent trained nurse, never leave him with a primary plaster dressing on the limb without making a slit therein from the upper to the lower end down to the skin. Please do not forget this, for if this precaution be not observed, under the circumstances cited, swelling may occur in your absence which will not only cause the patient unnecessary pain but may result in gangrene of the limb; this has been known to occur under such conditions, necessitating amputation.

### OBSERVATIONS ON THE SYMPTOMATOLOGY OF ULCERS OF THE UPPER DIGESTIVE TRACT.\*

By ROY UPHAM, M.D., Brooklyn, N. Y.

The presentation of the following personal observations may seem to be almost unnecessary, as the treatment of the two conditions appears to be quite identical. The surgeon especially claims to cure all cases with a gastroenterostomy; but when the disease arises in his own family I find him prone, almost to a habit, to resort to medical treatment first. As a measure of safety I believe the diagnosis of the exact location of the lesion should be arrived at as accurately as possible. Medical means, I believe, are followed by excellent or superior results in gastric cases, but in duodenal disease, and in that

I include ulcers near enough to the pylorus to cause symptoms referable to that structure, surgery, in my opinion, is suitable.

Short-circuiting of the duodenum in this type of ulcer is ideal surgery, but the performance of gastroenterostomy for ulcer in the stomach proper I deem unnecessary and unwise, of course, barring the complications. If the operation can short-circuit the area of disease it is indicated, otherwise not. A gastroenterostomy opening is apt to close and its function be assumed by the normal channels. This is the cause of some of the failures in the past after this operation, and the present method in these cases is not alone to do a gastroenterostomy but to so infold the ulcer as to narrow the lumen of the duodenum and cause the food to be forced through the anastomotic opening as the easiest point of outlet; thus the ulcerated area secures rest from functioning.

Pain, the cardinal symptom, and which is paramount in the mind of these patients, will be the first subject of analysis. This symptom will be observed from the following viewpoints:

First, character of the pain.

Second, the influence of the pain upon nausea.

Third, the time of the appearance of the pain relative to the taking of food.

Fourth, the influence of particular foods on the pain.

Fifth, the influence of particular drugs on the pain.

Sixth, presence of a painful area.

Seventh, radiation and referred pain spots.

Eighth, location of the pain.

Pain means organic disease, and in ulcer we have well marked pain and not pressure. Ulcer of the stomach gives rise to pain of a burning, boring character. The sensation is as if there were a surface deprived of its superficial coating, as a burn. Now in contradistinction to this, the duodenal ulcer manifests a cramping pain, and this difference is a practical means of differentiation given by the patient himself. I desire to dwell on the character of the duodenal pain, as this together with the so-called hunger pains, to be spoken of later, are of utmost importance in the diagnosis. The pain seems to start from both sides and work towards the center of the epigastrium—that is the typical way it will be described to you, or it will be said to be like an excruciating gas pain, or as if the epigastrium were tightly clutched with the hand. But the pain starting from the sides and working to its climax in the median line is pathognomonic.

\* Read before The Homœopathic Medical Society of the State of New York.



The causative factor of the pain is, of course, in a great measure a pylorospasm, but there is this point of difference from the pylorospasm of appendicular dyspepsia, that it is relieved by food, while in the latter condition it is aggravated.

Let me drive home the next point, and that is, that in gastric ulcer the sequence of symptoms is, pain first and then following this—and let me emphasize the word “following”—comes nausea and possibly vomiting, but it is the pain which gives rise to the nausea. The patient is afraid to eat because of the pain and nausea. Quite opposite to this is the condition of affairs in the duodenal type of disease, for here I consider nausea and vomiting are rare symptoms, and the patient is extremely desirous of eating, as it eases his pain.

The duodenal ulcer gives rise to the well-known hunger pain, that is, a gnawing in the stomach coming on when the organ is empty and forcing the patient to eat to get relief. This pain wakes him from sleep at a certain definite time at night and compels him to take food to obtain relief and sleep. This causes these persons to be known as clock setters, the onset of the pain being at such a constant time. In neurasthenia and dyspepsia there may be this gnawing pain on an empty stomach, but the neurasthenic pain will never wake the patient at night. The symptom of hunger pain waking him at night clinches the diagnosis of duodenal ulcer.

Diagnostic of ulcers is pain at a definite time after meals. In gastric ulcer distress is experienced within the first hour. The duodenal pain is slow in appearance and usually occurs late in the digestive period, just before the next meal is to be taken. *An empty stomach and pain are synonymous with duodenal ulcer.*

Highly significant, as already mentioned, is the effect of food on the different pains. The sufferer from gastric ulcer dreads to eat the simplest food as it increases the discomfort, and as for coarse or bulky food, he flees from it like the pious Quaker from iniquity. A far different story is told by the patient with ulcer lower down, for eating is his great solace, and whenever distress arises he has found that it can be dispelled by the ingestion of food, and it apparently makes little difference how difficult of digestion this is, it still brings relief. Even alcoholic beverages and the light wines ease his suffering.

From this we can readily understand the characteristic difference that the two types of disease present. From his self-enforced starvation the subject of gastric ulcer is thin and wan and reports

much loss in weight, looking as sick as he is, while my duodenal cases are the best nourished individuals in my practice, being fat and healthy-looking.

A great aid in the diagnosis is the result on the production of pain by the ingestion of 2 c. c. of dilute hydrochloric acid in a half glass of water taken one hour after an Ewald meal. This increases gastric ulcer pain almost invariably, and until recently I have believed it to have no effect in the duodenal form of ulcer. But recently in two duodenal cases it has, when given at times of pain, eased distress, and this is in accord with the experimental cause of duodenal pain which is now proven to be produced by the irritation of the ulcer by the acid gastric juice. If, however, hydrochloric acid be administered it causes reflex closure of the pylorus and an outpouring of duodenal secretion, this bathing the ulcer in a soothing fluid, neutralizing all free acid present in this region, and thus relieving the pain.

Closely allied to this is the relief of pain following the taking of 10 grains of orthoform, but in my experiments it has been a great surprise to me to find that the alleviation of pain was almost as prompt in duodenal ulcer as in the gastric variety. The drug is so efficient in ulceration of the upper digestive tract that practically any patient who is at all well informed will believe he has been given an opiate. Why it affords relief in the duodenal case so quickly is probably explained in that on entering the stomach it acts like food, causing a reflex secretion of the duodenal secretion which arrests the pain for a few minutes until the orthoform itself is propelled onward to the site of the ulceration.

The administration of 10 grains of orthoform, with consequent relief of pain within ten minutes, is one of the best diagnostic signs at the present time in unraveling the difficult problems in the diagnosis of diseases of the structures in the pyloric triangle.

The finding of a spot of localized tenderness on the abdominal wall is quite frequent after careful search in gastric ulcer, but rarely, if ever, is a tender area detected in the duodenal type, as the location of the duodenum is so deep as to preclude the possibility of making pressure on the spot. Typical of the tender spot—and by the way, it is always small and localized—is, that pressure upon it gives rise to distress, identical in nature with what the patient has been enduring.

The spinal point of tenderness to the left of the eleventh and twelfth dorsal vertebræ is a constant

symptom of gastric ulcer, but no such areas of spinal tenderness have been found in the duodenal variety.

Jaundice appearing during the course of the disease or mentioned in the history is a point in favor of duodenal disease, the reasons being quite apparent.

From the history we can often gather a helpful point, namely, that dyspepsia of a painful character occurring for a long time with no nausea and vomiting is indicative of duodenal ulcer, while in gastric ulcer the painful dyspepsia is soon complicated by vomiting.

In the analysis of stomach contents an increase of hydrochloric acid is a constant occurrence in duodenal ulcer, and never have I seen a case believed to be such, where the hydrochloric acid was not increased. On the other hand, low acidities are often found in gastric ulcer, and findings from 40 to 60 are not infrequent. I have records of seven gastric cases all with acidities below 50. My point here is, that low acidities are not at all inconsistent with gastric ulcer, but are never found in the duodenal form. Painful dyspepsia with low acidities would rule out, for me, all thought of duodenal disease.

The appearance of gastric contents darkened with blood, or presenting more apparent evidence of fresh hemorrhage, speaks always for gastric ulcer. Blood does not regurgitate into the stomach in duodenal affections.

Of course, if there is hemorrhage from the duodenum blood appears in the stool, but I have seldom had to resort to testing of feces for this to establish the diagnosis. However, if an examination be made, it must not be forgotten to mark off the stool with a dose of carmine, and then from that time on till the test is made to give no meat or meat-soups, as that will give a false idea of a positive result.

And lastly, let me make the following point in this paper in which no effort has been made to cover the subject, but the object of which has been to present phases of the affections under discussion that in my personal experience have been the foundation stones of correct diagnoses: That the gastric ulcer patient in his history shows a steady progress of his symptoms and has been a comparatively constant sufferer up to the time he comes under your care, while the duodenal case history is one of periods of ill health, followed by several weeks of complete relief of all symptoms. The patient's relief is so great that he believes his trouble is past,

but this is shortly followed by a recurrence of the old condition which lasts for a time, to be again succeeded by a similar period of well-being, and this in turn by further relapses. In other words, the disease is intermittent. The reason is that ulcer in the duodenum shows much more disposition to heal, and unlike gastric ulcer when healing takes place it is complete, and even the glands are replaced over the subjacent tissues, not leaving a scar as in the stomach.

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### FRACTURES OF THE PATELLA.\*

By W. H. HOWELL, M.D., Altoona, Pa.

Owing to the important functions of the patella, although only a small, so-called sesamoid bone, fracture of it is of vital interest to the patient. The fact that his ability to earn a livelihood for himself and perhaps a dependent family is involved makes it the more imperative to each and every one of us to obtain as perfect a result as is in our power.

Statistics show that fracture of the patella is an accident occurring mostly in the male sex, and caused in the majority of cases by muscular contraction. This is due to the heavy work of the male and to the severe contractions made at a time when the leg is semiflexed upon the thigh. The rectus, crureus, vastus internus and externus form one of the strongest groups of muscles in the body, and during their contraction, with the limb semiflexed, the patella, which acts as a fulcrum, thereby giving these muscles more power, may be broken. It is probably the most frequent bone in the body to be fractured by muscular contraction.

The form of fracture commonly met from such a cause is the transverse variety, while fracture from direct violence is more apt to be oblique, comminuted or stellate.

Fracture of the patella from muscular contraction may happen from the simplest cause, such as alighting from a carriage, tripping, etc. I have in mind a strong robust man, who, while in the act of alighting from a train, fractured both patellæ—a most unfortunate accident, indeed. This man is a cripple to-day owing to the fallacious methods in vogue at that time of treating such injuries.

The diagnosis of fracture of the patella is very easy. Pain, swelling, separation of the fragments, and usually crepitation are sufficient to determine its presence, but the use of the x-ray should always

\* Read before the Railway Surgeons' Association of Pennsylvania Lines East of Pittsburg, September 22-23, 1911.

be brought into play to positively ascertain the amount of solution of continuity.

The prognosis in a case of fractured patella should always be guarded; no matter what method be chosen for treatment, none is always certain to produce a perfect result.

The question arises what form of treatment shall we pursue to give our patient the best result. The older methods are too numerous and unreliable to give them much consideration, although I have seen good results following some of them. The one and only method which I have ever used is the radical operation, viz., exposing the fractured bone, removing all blood clots, small portions of bone, and torn tissue, wiring the fragments, and above all carefully suturing the divided tendons.

Experiments upon the cadaver have shown that a subaponeurotic division of the patella can be made without producing any separation of the fragments. It has been found also that in many cases of comminuted fractures of the patella good results can be obtained under conservative treatment, because the tendon fibers surrounding the bone are not lacerated and the fragments are thereby held in apposition. Hence, the most important step in the operation is to carefully coaptate the edges of the torn capsule and suture the same.

The success of the operation will depend largely upon our technic, guarding against infection. We must remember that we are dealing with one of the most important joints in the body, infection of which will almost invariably lead to amputation, excision, or possibly death of our patient; hence, asepsis and careful suture of the capsule are the keynote of success in the radical treatment of this injury.

The preparation which I am in the habit of making consists of washing the part with soap and water and shaving it. At the time of the operation a solution of iodine, 1 part, benzine 1,000 parts, is applied, which is allowed to evaporate, and then the whole area is painted with  $3\frac{1}{2}$  per cent. solution of iodine. I believe this to be the best method of preparing the skin for any operation. I am in the habit of making my incision with its convexity upward rather than downward, for the reason that this brings the cicatrix above the knee rather than below, which in after life may interfere somewhat in the act of kneeling. Another reason is that the skin is often thicker over the ligamentum patellæ and not as healthy a scar will result. Still another reason is that during the first few days the foot is elevated and drainage is facilitated in this manner.

After exposing well the fracture it is necessary to remove all foreign bodies and blood clots, to clip away all small shreds of torn capsule, and carefully approximate the fragments of bone. These should be held in position by means of quite heavy silver wire passed down to, but not through, the posterior surface, and made to enter at a corresponding point in the other fragment and emerge from the same. The wire is tightened by twisting, cut off, and the projecting end turned over. The surrounding capsule should be most carefully sutured with 20-day chromicized catgut. The wound should be perfectly dry before suturing the skin which should be united with plain catgut, the part well enveloped with gauze and cotton, and a plaster-of-Paris cast applied.

This dressing should be left on for five or six weeks when it can be removed, and the patient allowed to start passive motion.

The question arises, when shall we operate for fractured patella. I believe that it is safer to wait three or four days following the injury before attempting to perform any radical cure. Experience in the hands of others bears me out in this assertion.

How shall we treat our comminuted and stellate fractures? I believe that the same principle applies to these forms as to the transverse—the suturing of the capsule which will hold the fragments in apposition and the limb fixed in an extended position.

### **SALVARSAN, WITH ESPECIAL REFERENCE TO ITS ACTION ON THE NERVOUS SYSTEM.\***

By ALFRED POTTER, M.D., Brooklyn, N. Y.

*Assistant Dermatologist to Kings County Hospital.*

Although about two years have elapsed since salvarsan was first used on the human subject, and up to the present time nearly one hundred thousand cases have been treated with the new drug, I do not feel that our knowledge concerning it is by any means complete. The time allotted to me for this paper will not permit of a detailed description of salvarsan or the most interesting history of Ehrlich's discovery of the remedy.

While numerous methods have been devised for the administration of 606 by the different experimenters, practically all are now agreed that the two best are the intravenous and the intramuscular injection. In the intravenous the drug is given in alkaline solution well diluted. The advantages of

\* Read before the Brooklyn Society of Neurology, February 7, 1912

this method are the rapidity and intensity of action, the more direct results obtained, and the fact that the procedure is practically painless and does not incapacitate the patient except for a short time. It has the disadvantage that the drug is rapidly eliminated, the arsenic disappearing from the urine in from five to seven days. It is certainly the method of choice, however, in the early stages of syphilis and in the malignant and galloping cases of the disease.

The intramuscular injections should also be given preferably with an alkaline solution. The advantage of this method is the slow and gradual absorption of the drug. Its disadvantage is the fact that it is more or less painful and incapacitates the patient for about a week or ten days. However, if only one injection is to be given, unless the case is in need of rapid effect from salvarsan, I am strongly in favor of the intramuscular method with the alkaline solution. While intramuscular injection of neutral suspensions, the first mode of administration employed, is practically painless, they are not readily absorbed and are fast falling into disuse. For patients who for any reason are unable to stand a full dose of the remedy at one injection, a suspension or emulsion of the powder in the vegetable oils given in small doses of 0.1 to 0.2 gm. at intervals of from every day to once a week seems to have given good results, and I believe this method will find favor in the future in some cases. I have used it in a number of children and women and obtained good results.

One of the most important points to be considered with reference to salvarsan is the dosage. At first 0.3 gm. was the maximum dose advised, now 0.6 gm. for men and 0.4 or 0.5 gm. for women is the average dose. I do not think that any set dose can be laid down for all cases, and I am of the opinion that in the future, to prevent the recurrences which happen from time to time, either larger doses will be given or more repeated injections will be resorted to. Kromayer for the past year has been giving intravenous injections of 0.2 gm. three times a week up to a total of 3.6 gm. Of 365 patients so treated he has recently had 136 re-examined, and his findings confirm his belief that this is the best method of treatment. There were no recurrences of symptoms in any instance where the total dose was 1.6 gm. and no neuro-recurrences.

#### BY-EFFECTS.

While a complete discussion of the by-effects of salvarsan would require a separate paper, I will mention in passing a few of the more important

ones recorded. Dr. Winfield has conveniently classified them as local, organic, and general.

The *local by-effects*.—The most important of this class is Herxheimer's reaction. This is an intensification of the syphilitic eruption, generally coming on shortly after the drug has been administered. Scarlatinaform, urticarial, herpetic, pustular and papular eruptions have all been reported.

The *by-effects in various organs*.—These have most frequently affected the kidneys. Hemorrhagic nephritis, hematuria and retention of urine have been repeatedly observed. Diarrhea has occurred in a few cases, but constipation is more often noticed. Hepatic symptoms with ulcers have also occurred.

The most important by-effects are those manifested in the cranial nerves. The ocular disorders that have been observed after the use of salvarsan are optic neuritis, with resultant atrophy and blindness, iritis, choroiditis, paresis of the eye muscles and neuro-chorio-retinitis.

The aural by-effects observed are nystagmus, deafness and vertigo. The facial and other cranial nerves have also been affected. It is a very mooted question as to whether these affections of the cranial nerves following the use of salvarsan are by-effects or whether they are neuro-recurrences of a syphilitic process. It is known, of course, that such complications may occur spontaneously or after the use of mercury. I have not been able to ascertain whether they have been more frequent after the use of salvarsan than after mercury or not. Certainly a great many of the cases have cleared up under further treatment with salvarsan or mercury.

Ehrlich claims that the optic and auditory troubles are syphilitic in character and are not dependent on salvarsan. However, he has not proven this statement.

Finger, who has reported a large number of neuro-recurrences, claims that these complications are syphilitic, but in some way are connected with salvarsan, perhaps due to the traumatic effects of the drug on the nerves.

Pincus and others state that when the recurrences take place early that it may be an effect analogous to the Herxheimer reaction.

The action of salvarsan on the cerebrospinal system is also sometimes serious and even fatal. Convulsions, coma, epileptiform seizures and even death have followed its use. Edgerton and others report epileptiform seizures, without biting of the tongue, occurring on the fifth and sixth day. Mann reports a case of complete unconsciousness with abo-

lition of all the reflexes lasting for three days and disappearing gradually. These phenomena are probably due to the acute edema of the membranes which we know can develop two or three days after injection of salvarsan.

In most cases the serous effusion undergoes rapid absorption and no ill effects follow. Some fatal cases have occurred, however. Fischer reports the case of a man who died in coma less than twenty-four hours after the onset of symptoms. The autopsy revealed a hemorrhagic encephalitis and an incipient cirrhosis of the liver. Almkvist also reports a case of death from hemorrhagic encephalitis—the first one in a series of 184 intravenous injections. The rapid freeing of spirochætal endotoxines is also mentioned as a causative factor in the production of these accidents.

Seegman, summarizing the viewpoint of the Vienna otological school (around which centers the enmity to 606) as to neuro-recurrences, quotes the experiences of Beck and Rothig, and believes that the vestibular branch of the acoustic nerve is a *locus minoris resistentiae* to salvarsan as the optic nerve seems to be to atoxyl.

Shamberg believes from his observations that the neuro-recurrences happen after the intramuscular or subcutaneous injections. My own observations seem to show that most recurrences took place in the cases which were first given an intramuscular injection and this was followed by an intravenous injection. These cases may be accounted for on the ground that the second dose may have been given before the first was entirely eliminated and when part of the drug was still stored up in the liver and spleen. I am also of the opinion that the edema of the encephalon would be less likely or less pronounced from the gradual absorption of an intramuscular injection than from the rapid and intense effect of the intravenous method.

*General By-Effects.*—Elevations of temperature from 100 deg. to 105 deg. F., preceded in some cases by a chill, has been reported by nearly all observers. Headache and some nausea and even vomiting are common, especially in neurotic individuals. Herbstmann believes that the reaction of chill, headache and nausea is an indication that the drug is not inert. Elevation of temperature, especially when accompanied by muscular pains, soreness and profuse sweating, is undoubtedly due to the liberation of endotoxins from the killed spirochætes.

#### EFFECT OF SALVARSAN ON THE WASSERMANN REACTION.

The effects of salvarsan on the Wassermann reaction as reported by the different observers differ

widely. The reaction does not always change from positive to negative, and the time of such change when it does occur varies within very wide limits. Pick in thirty cases has seen no change at all; Neisser and Kutnisky observed a positive reaction become negative in 44 per cent. of cases; Schreiber and Hoppe in 55 per cent.; Huggenberg and Geronne in 60 per cent.; Quarelli in 95 per cent., and Ehrlich in 90 per cent. Similar discrepancies are unearthed when the date of the change from positive to negative is considered. Favento says he has seen the change in the first week, Spatz within ten to seventeen days, Neisser and Iverson, from the twentieth to the thirtieth day, and others report its occurrence at still later times. Lange who studied 268 cases gives the end of the fourth week as the most common date. The cases treated by Dr. Winfield and myself at the County Hospital have averaged about four weeks for the change, and in the cases that we were able to follow up which received no further treatment the reaction returned to positive in about three to five months.

The experience of most observers in regard to the action of 606 on the Wassermann reaction I believe is similar. In some cases there are decided changes; in equally as many others they are doubtful or absent. Favento claims that since larger doses are being given changes from positive to negative are more frequent and appear earlier.

Certainly the effect upon the Wassermann reaction is much less favorable than upon the clinical manifestations of syphilis, and if we must rely upon the Wassermann reaction as to our knowledge of the curative action of salvarsan on syphilis (and it seems to be the best test at our command) the brilliant clinical cures are not always permanent.

#### THE EFFECT OF SALVARSAN IN SYPHILIS.

While the original claim of a *therapia sterilisans magna* is no longer claimed by Ehrlich or the many observers who have experimented with this remedy, except perhaps in a very small percentage of cases in the very early stages, it is the consensus of opinion of most syphilographers that our means of controlling and curing the disease have been greatly strengthened by the addition of salvarsan to the therapeutics of syphilis. Its effect on initial lesions is astounding. Hard chancres melt away in twenty-four to forty-eight hours and disappear in from two days to two weeks. Examination of smears for the spirochætes twenty-four hours after injection fail to disclose any. This is a very important effect of the treatment in preventing the spread of the contagion.

The secondary roseola disappears in a few days to a week; sometimes in twenty-four hours. Pharyngitis and mucous patches are cured in about the same time. The glands promptly shrink in size, and those which before treatment disclosed numerous spirochætes in aspirated fluid fail to show any four or five days after the injection. Papular and pustular syphilides take from ten to fourteen days to heal completely. Moist papules dry up in a few days and heal in a slightly longer time. The general symptoms of the secondary stage, such as pain, headaches, neuralgia, insomnia, etc., are quickly influenced and patients take on weight, improve in appetite and feel better in every way.

The tertiary lesions which so often resist mercury and the iodides are also promptly affected by salvarsan.

Palmar syphilides and tertiary glossitis show rapid improvement after this treatment. One of the first cases Dr. Winfield treated, I remember, was a tertiary condition of the tongue and lips which had received eight years' steady treatment at the hands of several competent men with very little improvement. The condition healed almost completely in three weeks after one dose of salvarsan. This case has never had a negative Wassermann reaction.

Gummata and old ulcers otherwise uninfluenced disappear rapidly in three or four weeks. Gummata of the palate and nose threatening perforation recede, often without further damage. On the other hand, cases not influenced by 606 are by no means rare. Numerous observers report secondary and tertiary lesions which have not been influenced in several months by two and even three injections.

The results in hereditary syphilis are not very promising when the injection is made directly into the child. While autopsy findings show that the spirochætes are killed by the action of the drug, either on account of the wretched physical condition of the children or the poisonous effect of the endotoxins liberated by the mass of spirochætes in the internal organs, or both, a large percentage of infants so treated die. On the other hand, the results obtained by injecting the mother of nursing infants have been particularly satisfactory.

*Effects of salvarsan on cerebro-spinal syphilis and diseases of the nervous system.* In gummata of the nervous system favorable results have been observed in many instances. Neisser, Wechsleman, Wibö and Marie claim to have cured syphilitic paralysis and cerebral gummata with salvarsan. Taege and Bayet have noted under its influence the regression of the Argyll-Robertson pupil sign in early

cases of tabes. Improvement in the shooting pains, headache, neuralgia and other painful symptoms of tabes have also been reported.

Marcus gives the details of twelve cases out of a total of fifty cases of syphilis of the nervous system in which he administered 606. He says that although the remedy was powerless against severe advanced paralysis or tabes dorsalis, yet the bladder and bowel symptoms and the pains were much ameliorated and improvement was noticed in other ways. In some patients the memory improved, while others lost their apathy and difficulty in speaking. Trempel has treated 62 patients of this type with salvarsan and concludes from his observations that intravenous injections are justifiable in those cases of tabes and paralysis in which the interval since infection has not been too long and the nervous troubles are of recent onset.

As regards the parasyphilitic diseases it is self-evident that degenerated portions of the central nervous system cannot be regenerated. However, according to Erb, other syphilitic lesions are found in tabes besides the sclerotic processes, especially changes in the bloodvessels, gummata and meningeal proliferation; this being also the case in progressive paralysis. Further, cases of pseudotabes and pseudo-paralysis (Fournier) in which a correct diagnosis is often difficult are perhaps of more frequent occurrence than was heretofore supposed.

If in tabes every small focus of syphilitic process can be made to recede by the use of salvarsan, the advantage to the patient is very great, as the most important nerve tracts lie in close proximity in a very limited space. However, despite the favorable reports in these diseases by numerous observers, most agree that except in early cases of tabes and paresis little improvement is to be expected from salvarsan.

Besides syphilis and recurrent fever salvarsan has been successfully used in the treatment of frambæsia (Nichols), experimental sleeping sickness (Yakinoff, Loeb), lichen simplex, filariasis, and chorea minor (one case by Bokay), and some cases of psoriasis and tubercular leprosy. The diseases not successfully treated are pernicious anemia, malaria and pellagra.

On the whole, the effect of salvarsan is very similar to that of mercury; both are toxic, both give apparent cures and also allow recurrences. One dose of salvarsan, however, is the equivalent of many doses of mercury.

In conclusion, I should like to put myself on record as being strongly opposed to the indis-

criminate use of salvarsan. It is a powerful drug, capable of much good and also of much harm. It should be employed only by men who have had much experience in its administration and even then only after the patient has been thoroughly examined and found free from serious organic lesions, especially of the eye and ear, unless of a syphilitic nature.

Many accidents and poor results have been noted from the administration of salvarsan in the office and dispensary and from allowing the patient to go home immediately after its use.

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### ETIOLOGY OF APPENDICITIS.

By WILLIAM F. WAUGH, A.M., M.D.

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Chicago, Ill.*

A surgeon has contributed materially to the study and elucidation of the causes of appendicitis, in a way that impels one to revise his estimate of the operating gentry as mechanics with mechanical conceptions alone. John Dill Robertson, in a paper that appeared in *Surgery, Gynecology and Obstetrics* for October, 1911, has given us an intelligible idea of the causes of appendicitis based not only on the anatomy of the part but on its physiology as well.

According to Dr. Robertson traumatic appendicitis, the ancient grape-seed notion, is almost nonexistent, there being only from 0.004 to 0.035 per cent. of such cases, and stercoral forms in which fecal concretions are found in the appendix bring the proportion up to only about 12 per cent.

Among other explanations advanced to account for the malady are flatulent distension of the colon, forcing matter into the appendix by pneumatic pressure, colonic inflammation causing occlusion of the mouth of the appendix with retention of irritant contents, deposit of uric acid crystals on its walls, habitual constipation, chronic intestinal indigestion, intestinal catarrh, over-eating, especially at night, and local participation of the appendix in influenza, the exanthemata and other general infections. Dr. Robertson admits all these, but as minor coincidental or sequential elements rather than as primary causes.

As in all inflammations, that of the appendix is associated with vascular disturbances that precede and accompany the appendicitis. These form the primary etiologic elements except in the rare cases where there is an extension of the inflammation from the cecum by continuity of structure, as in

typhoid fever and in dysentery. The longitudinal muscular coat of the appendix is continuous with that of the cecum, and motor impulses directed to the latter are not confined to it but extend to the appendix. This muscular structure, the triband of the colon and cecum, extends into and completely surrounds the appendix. In early fetal life the appendix and cecum are one, the later development of the former being less on account of its smaller blood supply. This is afforded by a branch of the superior mesenteric artery, which traverses a fold of the peritoneum behind the ileum to enter the mesoappendix. Running along its free margin this vessel sends branches across the mesentery to enter the appendix, in which the artery terminates. In women this is supplemented by a branch of the ovarian artery sometimes, which is one of the reasons for the smaller proportion of appendicitis in that sex, there being two cases to three in men.

The minute arterial twigs pass through the muscular coats to reach the submucous layers, and the veins return the same way. The latter are devoid of valves, are excessive in caliber as compared with the thickness of their coats, and are surrounded by soft lymphoid tissue with little connective to furnish support to their delicate walls. Hence they are especially susceptible to even the slightest muscular compression. As the appendicular portion of the great triband participates in every contraction of the colonic and cecal portions, the veins of the appendix are affected by this alternating contraction and relaxation, and hyperemias and thromboses are readily induced. These invariably precede attacks of appendicitis, and furnish a ready opening for the invasions of the tissues by the colon bacilli that are continually present. Infection is thus facilitated and acute attacks are precipitated. The vein walls may even be ruptured by these muscular contractions. Riedel states that "hemorrhage into the tissue and beneath the epithelium may precipitate a sudden attack of inflammation by injuring the tissues."

Lockwood says that the circular muscular coat of the appendix forms a ring of unstriped fibers about one millimeter thick, dense because it contains few connective elements and but few bloodvessels. The subperitoneal tissues, bloodvessels, nerves and lymphatics are very intimately connected with the submucosa. The union takes place at gaps in the muscular coats that serve as apertures for the transmission of bloodvessels, nerves and lymphatics from the mesoappendix to the mucous coat. "In proportion to the thickness of their walls the lumen of the appendicular veins is of vast size.



and it may safely be inferred that they easily become distended with blood. Their anatomic relation to the rest of the portal system is also calculated to conduce to venous engorgement." "Owing to the stagnation of the blood-stream, clots are nearly always present in the appendicular veins in acute infective appendicitis, with perforation or gangrene, and in the absence of valves, these clots can easily spread and become detached."

This furnishes a key to the difficulty. The muscular effort requisite to lift the contents of the cecum against the force of gravity and force them along to the sigmoid flexure, must entail a tremendous pressure upon the delicate walls of the appendiceal veins, at the same time interfering with the circulation that furnishes nutritive material to the appendix. In spasm of the colon walls the circulation in the appendix may be wholly cut off for several minutes at a time, causing momentary colics, if brief, innutritive conditions when prolonged and frequently repeated. Carbon dioxide accumulates in the lymph, the protoplasm receives too little nutriment, and atrophy and degeneration follow. Catarrhal processes then are induced readily by the invasion of colon bacilli, while the carbon dioxide stimulating the connective elements around the vessels induces anemia, constriction, and stenosis of the lumen of the appendix. Recurrent appendicular colics result. If the colonic spasms are more prolonged we have thrombosis, and invasion of the thrombi by colon and other bacilli quickly follows, as shown by acute appendicitis and sometimes abscess, or, if sufficiently prolonged, by gangrene.

From these considerations it becomes evident that all the etiologic factors suggested may be in operation at times and contribute to the disease. Chronic constipation and intestinal indigestion induce venous stasis and tormina with venous congestion and circulatory stasis. The action of the triband now results in formation of thrombi, germs gain entrance, inflammation occurs, and adhesions of the appendix to the surrounding structures induce similar conditions. Interference with the venous circulation offers a ready avenue for the entrance of germs, through inflammatory exudates of low vitality. Since the muscular activity of the cecal and appendiceal musculature is most marked in the young, these are more subject to appendicitis than those whose advancing age brings intestinal torpor.

Dr. Robertson's conclusions are:

1. The muscles of the colon and appendix are an entity.

2. Muscular contraction in the colon and cecum, whether of the circular fibers or of the longitudinal

bands, must be associated with a simultaneous contraction of the muscular walls of the appendix.

3. This contraction is induced by nerve stimulation, the stimulant being presented by the various tabulated predisposing factors as enunciated by many observers, all of which can be accounted for in this one general cause.

4. While the normal muscular contraction and relaxation of the appendix act only to support circulation, when spasmodic in nature it overdoes the matter and produces vascular disturbances.

5. Owing to the peculiar anatomic structure of the appendix, all that tissue within the circular muscle fibers, being spongy in nature, becomes during the abnormal contraction, a veritable dam in which the blood is retained until released by the subsidence of the spasm.

6. According to the intensity of the spasm will depend the degree of mucous membrane varicosity and edema, and thus will be determined the varying degrees of inflammatory action.

7. If the spasm be of the mildest degree only, then appendicular colic will result; if of the maximum intensity, gangrene will follow.

8. It may therefore be concluded that atrophy, degeneration, hyperemia, congestion, hyperplasia of connective tissue, and thrombus formation occur before, and not after, bacterial invasion of the walls of the appendix.

This lucid presentation gives a definite explanation of the efficacy of the treatment that has proved most successful in acute appendicitis not subjected to operation, namely, the administration of hyoscyamine and strychnine. The former sedates the spasmodic contraction of the circular muscular fibers, relieving the passive congestion, while strychnine energizes the longitudinal fibers, stimulating the propulsion of the bowel contents along the cecum and colon, and lessening the lumen of the veins of the appendix. Both the anatomic elements present are therefore restored to normal conditions by this combination. The use of means to keep the alimentary canal clear and aseptic, thus avoiding stasis and lessening the dangers of infection, is confirmed.

The final summing up of this valuable paper seems to be, to care for the bowel so as to avoid the development of the train of morbid processes that end in operative appendicitis. This means taking care to prevent retention of fecal masses in the large bowel, where there are no safeguards against bacterial processes, decomposition, toxin generation and absorption. Keep the large bowel normally clear, clean and aseptic.

## TRAUMATIC NEURASTHENIA.

By JOS. M. WELLS, M.D., Trenton, N. J.

To treat this subject in all of its aspects would require a paper much too long to read before this association. It is my intention to mention the important points of diagnosis and prognosis.

Traumatic neurasthenia has been called by various names by different writers, such as railway spine, spinal concussion, traumatic neurosis, and accident aboulia.

This condition is one of the most important results of railway accidents with which the railroad surgeon has to deal, not on account of treatment, but because of the medico-legal questions. In nearly all of the cases there will be litigation, and the medical testimony will be of the greatest importance. It is therefore essential that we should be thoroughly prepared.

I have had the opportunity to examine fifteen cases of this condition. What I have to say will therefore be to a great extent the result of my personal observation. In describing the symptoms I shall draw almost entirely upon the last case I examined, and which presented the most important points for our discussion.

Neurasthenia, as defined by Bailey, is a condition of irritable weakness of the nervous centers, as a result of which they become less tolerant of external impressions and of the effects of fatigue. When this condition is a result of injury and shock it is called traumatic neurasthenia.

In many cases the injury may be apparently very trivial. While railroad accidents cause the majority of the cases, any accident, such as runaways, falls on the street and many others, may produce this condition. The sudden jar of a railroad collision, the rapid throwing back and forth of the body naturally causes some injury to the back, which may result in traumatic neurasthenia. This disorder is often brought about by suggestion, not only by friends, but also by the attending physician, especially should he tell the patient that there may have been an injury to the spine.

All the symptoms are subjective. The one most complained of, and which is present in every case, is **pain in the back**. The other symptoms are weakness, headache, inability to fix the attention, a faltering gait, or some lateral curvature of the spine, but this may be caused by the patient bending the body to relieve the pain. He complains of sudden noises, of cardiac palpitation, of strong light, which he says hurts his eyes. He is very ready to talk with anyone about his disturbances and enlarges

upon them, is depressed, and has an anxious expression. He is afraid to go out for fear that he will become dizzy and fall.

I can best describe the general symptoms by relating in detail the case mentioned above. I am indebted to the attending physician, Dr. Barwis of Trenton, for the history of the case.

W. S., aged forty-three years, railway mail clerk. There is nothing of importance in his previous history. On November 6, 1909, the train to which the mail coach in which he worked was attached was wrecked. The mail coach was derailed and went for a considerable distance over the ties. He was holding on to the pouch rail and was thrown forcibly from side to side, swinging with the swaying of the car. He was very much frightened, but did not know whether he was struck by anything. He was able to assist in clearing the wreck, remaining with his mail pouches until they were delivered to the proper persons. He returned to work the next day and worked for three days. On November 9th he became suddenly sick and called upon Dr. Barwis, complaining of marked soreness in the back. Bruises were found on the back at this time. On November 11th he had a fainting spell and had several similar ones during the night. Following this there were present palpitation, fainting attacks, insomnia, and pain along the spine; this pain was so severe that he could not be moved for several days. Early in December numbness developed over the right arm and considerable congestion of the scrotum. The pulse was irregular. He became irritable and did not want his wife to leave him. He remained in bed until January, 1910, and upstairs until March, but still complained of weakness. He was annoyed by any slight noise, could read very little on account of his eyes tiring, and complained of vertigo. This was his condition during the winter.

On April 11, 1910, I saw him for the first time with Dr. Barwis and found, in addition to the above symptoms, a sluggish reaction of the right pupil, some atrophy of the muscles of the right arm, an unsteady gait, a slight curvature of the dorsal spine, tenderness in the lower dorsal and in the cervical region, reflexes exaggerated, but equal.

As the case was to come to trial, I saw him again on January 22, 1911, with Dr. Barwis and two other physicians, the one with Dr. B. and representing him, the other with myself and representing the railroad. At this time there had been great improvement. He had been on the street walking, but would go but a short distance. He said that he could not raise his right arm, but when told to

remove his shirt and then to put it on again he raised both arms very freely. Mannkopf's test was present.

At both of my visits he talked very freely of the accident and was anxious to describe his feelings in detail. He had no concern for his wife's welfare, but thought that he should have the principal consideration.

His case was tried on January 25, 1911, and damages of about one-fifth of his claim were awarded. Since that time he has steadily improved and now says that he is ready for work.

I have described this case in detail as it is a typical one of severe traumatic neurasthenia.

In making a diagnosis organic lesions must, of course, be carefully excluded. As the symptoms are almost entirely subjective, care must be observed to detect malingering. Mannkopf's test, if present, is positive evidence of the presence of pain, but its absence does not prove the absence of pain. This test is applied by counting the pulse and then making firm pressure upon the painful area, when the pulse will be decidedly accelerated. The test is used almost exclusively in cases of pain in the back. To be reliable care must be taken that it is applied without the knowledge of the patient.

It is possible for traumatic neurasthenia to be caused by the shock of witnessing an accident without the patient being injured in any way, although these cases are rare. I have seen two such cases. In one an engineer saw his fireman severely injured, although it was not due to any neglect of his. He presented many of the characteristic symptoms and was unfit for work for a period of thirteen weeks. He would cry very easily, complained of pain in the back, insomnia and the usual symptoms of this condition. The other man, also an engineer, without knowing that his fireman was near the engine, started the train and killed him. He also presented the same line of symptoms and was unfit for duty for several weeks.

The prognosis is very generally favorable, and in many of the cases not only improvement, but complete return to health, follows the termination of the law suit.

Page states that 70 per cent. completely recover and that the others improve.

The anxiety of preparing for litigation, the numerous examinations and constantly thinking of the result of the suit, all tend to prolong the condition, and, if the trial is long delayed, may render the prognosis as to recovery bad. Could all of these cases be sent at once to a proper hospital away from sympathizing friends and placed under

proper care, I believe that the number of recoveries would be ~~much~~ greater.

As nearly all of these cases eventually get into court they ~~should~~ be examined very carefully. The examination should be made privately with the attending physician only present. Should we be called upon to examine such a case for the railroad and to give an opinion, it should be done with the greatest caution, always considering the possibility of a long convalescence, and urging a settlement out of court when possible, as the sympathy of the jury will always be with the plaintiff. Angell says of railway spine: "Railway spine is a convenient and picturesque term which has hypnotized juries, even as the shock has hypnotized the plaintiff."

I know that I have not presented anything new, and my only excuse for reading this paper is, that the importance of these cases has been impressed upon me by my personal experience. Hence I thought that it would not be amiss to call the attention of this association to the possibility of anyone of us being called upon as a witness at any time, and to the necessity of being prepared.

## REPORT OF A CASE OF PUERPERAL INSANITY.

By J. FENNER BELL, M.D., Weldon, Ark.

The case under consideration is interesting only from the fact that after two weeks of a very severe attack of puerperal insanity the patient awoke after a very good night's rest as rational as she ever was, without the return of a single symptom of mental disturbance, apparently well nourished and strong.

On December 8, 1908, I was called to see Mrs. K. H., aged twenty-two, primipara. Family history: Mother had five children, with an attack of puerperal insanity of short duration with each confinement. Two older sisters had puerperal convulsions with their first confinements, one of whom developed insanity and after two months died from exhaustion.

On my arrival, I learned that the patient had had two convulsions. She had been in labor fifteen hours attended by an old woman. I began to prepare my hands for an examination when she was attacked with another convulsion. I stopped everything until I had given her a hypodermic of  $\frac{1}{2}$  grain of morphin and  $\frac{1}{100}$  grain of atropin, with 10 grains each of bromide of potassium and chloral hydrate per rectum. I also made a wedge of cork and a napkin to place between her teeth to prevent

further chewing of the tongue. I then proceeded to sterilize my hands and instruments. I had the husband and the faithful old woman place her crosswise on the bed with her hips drawn well up to the edge of the rail, and then I washed the parts with synol soap and proceeded to adjust the forceps. It was somewhat difficult, as the child was still quite high up. I succeeded, however, in adjusting them in a very short time and in less than thirty minutes had delivered her of a 12 lb. boy. She had never regained consciousness, so an anesthetic was not necessary. The placenta was delivered promptly with very little hemorrhage following. The parts were again bathed with soap and water and the patient placed back in the bed with warm blankets around her and a hot water bottle at her feet.

After all was over I found her temperature, pulse and respiration normal, and she was seemingly sleeping as quietly as a babe. I told the husband that by the next morning she would be all right, but that I would call again to be sure that her condition was satisfactory.

On my return the next morning I learned that the patient had had two convulsions during the night and had never regained consciousness. By noon that day she developed insanity which was very severe. She was dangerous and would curse her husband and any one else that happened to be present. She defecated and urinated in bed. She was too strong for one person to manage, and when left with no one but her husband or the old woman she would frequently turn on them and had to be left alone.

This condition, as I said in the beginning, persisted for two weeks, and after a quiet night's rest, which marked the change, she awoke the next morning as rational as she ever was. Her first thought was for her baby. Since then she has never manifested a single symptom of insanity, and has given birth to two babies without the slightest symptom of a convulsion or mental disorder.

**Repeated Cesarean Sections.**—Dr. J. H. Carstens (*Jour. Mich. S. M. S.*, Feb., 1912) summarizes his views as follows: 1st. If the woman has children and a Cesarean section is required on account of tumors, sterilization is justifiable. 2d. In cases that have been long in labor and there is septic infection, a Porro's operation might be justifiable. 3d. In cases where there is only trouble with the bony structure, the classical Cesarean section should be performed. 4th. In all cases, the exact condition and results should be explained to the patient, not that you will do what she wants, but for the purpose of not giving her a chance to say that you did things to her that she did not want you to do.

### **REPEATED MISCARRIAGES.**

By C. K. JOHNSON, M.D., Burlington, Vt.

I wish to report a case thinking it may be of interest to some of your readers and perhaps call forth some suggestion as to the underlying condition. The patient, Mrs. R., aged forty-six, Hebrew, has always enjoyed quite good health except as herein described. At about twenty years of age she had a miscarriage at four months, and since that time at irregular intervals miscarriages or premature births have occurred, varying from two and one-half to six months of gestation. The last miscarriage occurred in December, 1911, at about two and one-half months, this making the fifteenth pregnancy. Except once she never has gone beyond the sixth month. In only one instance was a child born alive, this at five and one-half months, but it lived only a few minutes. Only twice have I been able to examine the fetus, which showed nothing abnormal.

This woman has a chronic interstitial nephritis of some years' duration; this condition has been suggested as an underlying cause in this case, but it could hardly be presumed that this nephritis existed at the time of her first miscarriages. The Wassermann reaction was negative. Pelvic examinations show no abnormality suggesting a cause for these miscarriages.

### **TREATMENT OF FURUNCLES.**

By T. JENSON, M.D., Spring Grove, Minn.

Having observed a considerable number of cases of furuncle, or carbuncle, in different parts of the body I will report several of them in order to illustrate my mode of treatment.

Case 1. A gentleman, eighty-two years of age, came to me with a neglected furuncle on the neck just below the occiput. He had used all kinds of home treatment, including poultices, for three weeks, but the furuncle was constantly getting worse, with a temperature of 101 deg. I considered the case of very serious nature as marked arteriosclerosis was present and a weak heart. It was found necessary to curette the mass and remove all necrosed tissue down to the external muscles of the neck, after which the following application was used: Fl. extr. echinacea, 1 ounce; glycerine, 1 ounce; water, sufficient to make 8 ounces. Aseptic gauze was wet with the above solution and the wound filled with it, the dressing being changed several times a day. Echinacea was also given in 10-drop doses at intervals, four times a day, and for the heart strychnin, 1-40 grain, with other stimulants as indicated. The result was better than expected; the pain subsided and he had a good night's rest after the curetting

and the application. Morphia was not given at any time. It took six weeks before the old man got well. I believe that the echinacea had some beneficial effect upon the arteriosclerosis, as the breathing became easier and the heart did not trouble him so much as before its use. After the furuncle an eruption developed on the lumbar region due to pressure from his underwear which caused much suffering. The trouble closely resembled the so-called herpes zoster. It yielded to the application of echinacea and electricity.

Case 2. A young man came to me with a furuncle on his neck just commencing. I injected 10 drops of carbolic acid into the area where the core was forming, and repeated the injection every second day for three times; echinacea mixed with seven parts of alcohol being applied on absorbent cotton to the site of inflammation. The furuncle did not ulcerate and disappeared in a few days.

Case 3. A young lady, a school teacher, consulted me for an ill-looking furuncle on the ulnar aspect of the right forearm a few inches above the wrist. The furuncle was incised, the core curetted out, and the cavity which was one-half inch deep was packed with aseptic gauze saturated with the echinacea mixture described above. I also noticed a crop of pimples and blackheads on her face, breast, and other parts of her body. Consequently I gave her echinacea with hypophosphites internally. It took three weeks before the sore healed. She is now in excellent health and the pimples and blackheads are all gone.

Case 4. A young man while riding a motor cycle lost control and was caught in a barb wire fence. His right foot was injured two inches above the malleolus on the tibial aspect. He treated himself for two days with liniments and alcohol, but with no relief. When he came to me his foot was enormously swollen from the ankle up to the knee; his temperature was 103. It looked decidedly like a case of commencing sepsis. Bearing in mind my success in the treatment of furuncles I injected 10 drops of carbolic acid into the injured area and made an application of echinacea, one part to seven parts of water, on absorbent cotton, the cotton being changed as soon as it became dry. The next day the foot was less painful and he could walk quite comfortably. I made another injection of carbolic acid. The following day he came to me again much improved and without pain. The enormous swelling was gone and pus was exuding at the places where the injection had been made. The opening was enlarged so as to give free drainage, but the application of echinacea was continued until he entirely recovered at the end of a week.

Whether the echinacea or carbolic acid deserves the credit for curing this case I do not know, but I shall hereafter use the above treatment in similar instances.

Reports have appeared as to the value of echinacea in rattlesnake poison, but I have not had occasion to try it in such cases. There are two kinds of echinacea on the market, one dark colored and the other colorless. I have used the latter entirely, which represents 480 grains of the crude drug to the ounce of fluid. Echinacea augustifolia is a native of the Western States, Kansas and Nebraska, and botanically belongs to the family of composita.

**Treatment of Retroflexion.**—Professor Kayser (*Fortsch. d. Mediz.*, No. 47, 1911) states that no definite principles have been established in the treatment of retroflexion. According to the views of most gynecologists, however, an uncomplicated retroflexion, which does not give rise to any disturbance, does not require surgical intervention. For this reason, if the patient is a virgin, it is advisable not to call her attention to any abnormal condition of this kind, so as to obviate its possible effect upon her mind. On the other hand, married women should be told of the displacement, so that in case of pregnancy a pessary may be worn during the earlier months, if necessary. If in cases of sterility no other cause can be found, treatment is to be recommended, as uterine displacement may be responsible. Cases of retroflexion or retroversion giving rise to disturbance as a rule require treatment. If the uterus is freely movable the use of a pessary after reposition of the organ may be sufficient, but this measure is to be regarded only as palliative, and in virgins and if the patient has any aversion to wearing a pessary, operative procedures are indicated. In cases of freely movable uterus, the operation of choice is shortening of the round ligament by the inguinal route. If at the same time plastic work on the perineum or vagina is required, the round ligament may be sutured to the vaginal wall, but even under these circumstances the Alexander-Adams method is the most rational procedure to prevent subsequent prolapse. For this reason Kayser is accustomed to resort to inguinal shortening of the round ligament after repair of the vaginal defect. In patients with fixed retroversion it is justifiable to attempt to remove the adhesions by non-operative means and to seek to correct displacement by the use of a pessary. If no improvement follows within a short time, the Alexander-Adams operation should be done after carefully separating the adhesions by blunt means. When, however, there is any doubt as to completely effecting this, or in the presence of complicating disease of the adnexa, the adhesions should be divided with the knife or scissors. Fixation of the uterus should never be done before the menopause. The after-treatment in these cases is of great importance, special attention being given to any persisting nervous disturbances, anemia, etc.

PUBLISHED  
BY THE

## International Journal of Surgery Co.

FRANK C. LEWIS, M.D., Managing Editor.

100 William St.—Woodbridge Building.  
New York, N. Y., U. S. A.

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## Editorial Department

NEW YORK, MARCH, 1912

THE REVIVAL OF AN ANCIENT  
VULNERARY.

In these days of serums, antitoxins, vaccines and synthetics it is interesting to note the revival of an old remedy long since in disuse, but once esteemed highly in the treatment of disease. However we may smile at the ignorance and vagaries of those who practised the healing art in the remote past, we must ever gratefully acknowledge the debt we owe to them for having provided us with many of our most potent medicaments, even though their knowledge was based upon pure empiricism. Doubtless in the constant search for something new which characterizes the history of medicine many a meritorious remedy has been forgotten which it may well repay the modern pharmacologist to resurrect and investigate.

What may be accomplished in this direction is strikingly shown by an instructive investigation of a very ancient and long-forgotten remedy, the common comfrey, made by Dr. C. J. Macalister, of Liverpool (*British Medical Journal*, January 6, 1912). The author's attention had been drawn to the fact that comfrey was still used considerably by country people in England and Ireland as a domestic herbaceous "simple" for applying to sores, and he was further impressed by accounts of its marvellous virtues found in ancient works. Having an oppor-

tunity to test its properties in a case of extensive ulcer of the chest of rodent character, he applied an infusion made from the root, and was gratified to note a distinct growth of epithelium after a week's use. In the meantime a quantity of the root had been given to Dr. Titherley and Mr. Coppin for chemical analysis. This showed, among other substances, the presence of a crystalline solid which appeared to be the active constituent. Further investigations of this revealed the most interesting fact, that it was identical chemically with allantoin, a compound obtained by an alkaline oxidation of uric acid and present in the allantoinic fluid of the fetus, in milk, in the buds of certain plants, in the bark of trees, in bread, French beans, green peas, etc.

It would seem, therefore, that this substance is quite extensively distributed in nature and particularly associated with growing structures. For this reason Macalister suggests that the influence of comfrey in promoting epithelial formation may be directly connected with the allantoin it contains in comparatively large amount.

Reverting to the case referred to above, after the discovery of allantoin a solution of this was substituted for the infusion of comfrey, and in the course of a month the ulcer had almost completely healed. The same experience was made by the author in other cases of ulcer, the solutions of allantoin used ranging from 0.3 to 0.4 per cent., as well as by a number of other surgeons; so that there is abundant reason to believe that the comfrey root really possesses a marked effect in stimulating epithelial formation, and perhaps even has a specific influence in this respect.

Dr. William Bramwell, in the same issue of the *British Medical Journal*, reports that in his practice he has sometimes used an extract of comfrey root as a dressing to ulcers. He states that it forms a coating which acts like a strapping, drawing together the edges of the sore, but far more evenly, and that healing takes place as under a scab. The removal of this dressing, however, was occasionally so painful that it could not be generally employed. Internally administered, the mucilage of the root seemed to exert astringent and slightly anesthetic properties, which rendered it of value in gastralgia.

Whatever be the final outcome of Dr. Macalister's investigation it cannot fail to be of general interest, also, from an historical point of view. Here we have a plant which was recommended in the writings of the ancient Saxons as a dressing for wounds and ulcers, and by some spoken of as the chief vulnerary herbal. Although it survived among the country folks, it was wellnigh forgotten in medical works

during the last two or three centuries, and now it is found by accurate clinical observation that the former estimate of its virtues is more or less justified, while the discovery and investigation of its active principle afford a reasonable explanation of its mode of action.

### THAT LUMP IN THE BREAST.

Surgeons are constantly lamenting that cases of cancer are referred to them too late to admit of thorough extirpation and consequent permanent cure. In carcinoma of the female breast this probably happens less frequently than in malignant disease of any other part of the body, since the presence of a "lump" and the knowledge of what it might mean will generally impel the patient to seek medical aid at a comparatively early period. Hence the greatest obstacle to early surgical intervention in this condition is the patient's dread of having to submit to a mutilating operation.

In view of the great predominance of carcinoma among neoplasms of the breast and the ever present possibility of benign growths undergoing malignant degeneration, the present attitude of surgeons is to view every mammary tumor with grave suspicion and to advise its removal in almost every instance. If there be doubt as to the nature of the growth, some surgeons are accustomed to have frozen sections examined immediately after its removal, and to govern their further course of action by the pathologist's report. In view of the fact, however, that a microscopical examination of this kind is not resorted to in many instances, while sometimes the evidence furnished is uncertain or even erroneous, there is always a chance of a really benign growth being mistaken for one of malignant character, and the patient not only subjected to an unnecessary radical operation, but the statistics credited with the fallacious record of a cure.

It has been justly emphasized by Dr. W. S. Thorne (*Journal of American Medical Association*, February 17, 1912) that in a notable percentage of cases tumors of the breast diagnosed as malignant do not undergo malignant degeneration; that the histological arrangement of the tumor does not necessarily determine its future life history or development; that certain tumors removed for malignancy would, if unmolested, eventually disappear. From his own records he cites the histories of eight cases in which neoplasms of the breast, exhibiting all the gross characteristics of cancer and diagnosed as such by a number of surgeons, spontaneously subsided. If these growths had been removed the results would

have gone to swell the list of recoveries and cures from operation, and there can be no doubt, as Dr. Thorne states, that such errors tend to invalidate the scientific value of the statistics.

While under present conditions few surgeons, however, will be content with a procrastinating policy in the case of mammary neoplasms, unless they present distinct evidences of a benign character, it is certainly desirable that where the nature of the growth is in doubt an attempt should at least be made to settle this question by a microscopical examination before resorting to a serious and mutilating operation.

### GYNECOLOGICAL HINTS.

By RALPH WALDO, M.D., New York.

The use of tents in the cervical canal has caused death in a few hours from acute sepsis. Although the tent may be sterile, the cavity of the uterus or cervical canal may contain infectious material.

There are many instances where minor infections have followed the use of tents. As long as it remains in the cervical canal it will prevent the escape of material from the uterus, and if the discharge is being rapidly formed a dangerous amount may accumulate in from one to three days, which is the time that a tent is usually allowed to remain in place.

The cervical canal can be safely dilated by means of graduated dilators or a steel branch dilator. If a woman forty or more years of age has severe uterine hemorrhage in spite of repeated and thorough curettage, and though no malignant disease is found on microscopical examination, hysterectomy should be performed.

Vaginal hysterectomy should not be attempted when, with the patient under an anesthetic, the cervix cannot be drawn down to the external parts and the upper part of the uterus felt from the vagina with the fingers behind and the thumb in front.

Sudden inversion of the uterus following delivery has, in one instance I know of, resulted in fatal post-partum hemorrhage. If this accident is discovered quickly enough, the uterus can usually be replaced, but if the cervix contracts, the inverted body becomes congested and it is impossible to replace it. In such a case, if the hemorrhage can not be controlled by direct pressure, ligatures should be so introduced at each side of the uterus as to compress the arteries. In all probability the uterus will be sacrificed, but better this than the loss of the mother's life.



## Department of Railway Surgery

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### A FEW OF THE FALLACIES IN EXPERT MEDICAL TESTIMONY.\*

By PHILIP MARVEL, M.D., Atlantic City, N. J.

The fact that I appear before you this afternoon to discuss, in a desultory way, the subject assigned me by Dr. Harrison is of itself an apology. I wrote to Dr. Harrison, declining the invitation, but, unfortunately, he did not receive my declination until he had already placed me on the program. This made me feel that I was under some obligation and, therefore, I am here, not to discuss the subject as you find it on the program, but somewhat changed, to read "A Few of the Fallacies in Expert Medical Testimony."

The subject is one which should intensely interest us all, and I take it that Dr. Harrison intended me to discuss it from the standpoint presented by the rearrangement, thus limiting the discussion to expert medical testimony, rather than extending it to the broader field of general expert testimony.

All controversial questions admit of divers constructions and permit differences of opinion as to the probable factors involved in the results obtained or to be obtained; and such questions may be further involved by a variety of different standards acceptable to the average professional man, as well as to the many of the masses. Opinion may also be more or less influenced by defects, peculiar relations, and infirmities, such as visual disturbances, viz., myopia, hemianopias, etc.; also, by employment, family or friendly relations, and mental incapacity, such as is sometimes found in psychoneurasthenics, neurasthenics, etc. Whether these may or may not cover the majority of active conditions which influence testimony, and explain some of the differences met in statements offered as evidence, or differences of opinion which arise when witnesses submit the same, it is nevertheless true that many witnesses who observe an occurrence from relatively close proximity are known to vary very widely in their observations and, unless opportunity is given them to compare or otherwise harmonize what they afterward offer as evidence, their statements will often appear to the court as almost diametrically opposed to each other.

This fact makes it possible, and even probable, that those disposed to pervert and controvert evidence intended to establish the truth will so use it. The object of testimony before the court is, primarily, to establish the truth of the declarations in the case and, secondarily, that the law may deal justly with the litigants.

To expedite procedures to these results, statutory decrees exist authorizing sessions of court by which impartial trial may be had. Two classes of witnesses are ordinarily admitted to testify before a tribunal of this character, viz., those who have knowledge of the facts in question and those who, by their superior knowledge and technical qualifications, are permitted to express opinions on suppositional and hypothetical questions arising from the evidence submitted. It is the latter class of witnesses that are concerned in the subject that has been assigned to me, and to which I shall direct my further remarks.

The testimony of a medical expert is especially sought when there arises some contingency in the trial where an accurate conclusion cannot be drawn from the evidence already evolved. In such cases the court, presumably, permits to testify only those whose opinion may further illuminate the evidence, that a proper decision may be reached. For our purpose to-day, let us admit that the majority who offer expert medical testimony are competent to give it, and that the usual purpose in doing so is above suspicion of appearing other than in the capacity in which the court outlines their duty, viz., that of further illuminating the testimony before the jury and clarifying any essential part of the evidence which is not fully understood. That there are exceptions to this, it is my purpose to show.

It must be kept in mind that the jury, and not the judge, is trying the case, the latter being the presiding officer or director of the procedure, who usually directs the case along certain systematic and well-organized lines for the just and expeditious determination of the differences in point. It is just as important, therefore, to be well qualified to comprehend hypothetical problems when presented, as to be specifically prepared for the ordeal at hand. The litigants in the case, the court and the jury, all look for a well-informed gentleman in the medical expert, and his opinions are necessarily measured by a similar standard. Therefore, in the event that he allows himself to connive with, or to be a party to, any trick, diversion, or misconstruction of the facts in the testimony presented, he not only suffers himself, but the whole medical profession with which he claims a membership suffers also.

\* Read at fourth annual meeting of Railway Surgeons' Association of Pennsylvania Lines East of Pittsburgh, Sept. 22-23, 1912.

The very privilege granted a medical expert, that of giving an opinion upon a hypothetical question or an assumptive proposition, puts it well within his power to direct the jury to a proper and just conclusion with reference to specious or obscure testimony; it likewise permits him to so place before them the same testimony that its presentation seems timely and of weight in the situation. I need not ask this audience if this is not often the case. It is, therefore, easily deducible that in some instances, for no other reason than above stated, medical experts are pressed into cases in which, even though the legal representative accomplishes his object, it is no less an evidence that the expert has disgraced himself and injured the cause which he represents.

Accepting as our standard the requirement of the court, we may readily proceed to investigate how nearly this standard is maintained in the present-day practices in regard to expert medical testimony. For comparative reasons, we will suppose a case in which the court has admitted the privilege of expert medical testimony; the expert has carefully listened to the presentation of facts, as brought out by the court and, to the jury, there is an unclarified situation in the evidence as given. The defendant, or complainant, as it may be, is quick to perceive the fact that, by certain manipulation or by an admission of the truth in part, but not the whole truth, he may be able to conceal from the jury certain important facts that otherwise might be confirmative of the end sought by the opposing side. Thus, the expert, knowing this, permits himself to be placed in a position in which he intentionally or wilfully assists in withholding part of the truth, or conditionally influences the same, when he is obligated by his oath to present his knowledge for the benefit of all concerned, thereby becoming a self-committed party to fraud, deceit and, shall I say, perjury in spirit, if not in the letter.

It is singular that men of high standing, representative men in our profession, will sometimes lend themselves to pre-arrangements or specific engagements, knowing full well at the time that the chief reason for their presence in the case is to obstruct, rather than to illuminate and bring out, the facts as they should be brought out.

It is to be regretted, also, that the legal representatives of the litigants will, in some cases, offer hypothetical questions based not wholly upon the facts in evidence, but upon suppositional statements which they hope to make pertinent to the question at issue. When, by ignorance or negligence on the part of the opposing attorney or oversight of the court, such evidence is admitted, opportunity is

given for misapplication or misdirection of the evidence previously submitted, resulting in a miscarriage of justice. In some instances, it is known that the opposing attorneys make a canvass of the men whom they regard as qualified to testify in the case, in the interest of their clients and, incidentally, their personal relations in the trial, and arrange a tacit understanding with the expert, previous to the hearing of the case, or a knowledge of the evidence to be brought out.

I leave it to you as to whether such procedures and such pre-arrangements have for their purpose any higher or better motive than that of defeating justice, dishonoring the court before which the evidence is submitted, and serving a commercial and mercenary end.

These are only some of the ways in which a medical expert may be used to serve a sordid and selfish relation in unraveling a controversy in which an individual able to command a price, or a corporation whose business it is to employ specialists for self-defense and self-preservation, may unhesitatingly use him. Important for good as may be the testimony of one properly qualified, honorable, and conscientious in his duty to the court and the parties contesting, it likewise may be no less vicious and damaging in its perverted use, not only to the medical expert implicated, but to the whole profession, to which he owes a duty and an allegiance from a higher standard than that of any pecuniary or other benefit which he may derive from such service.

That the present system needs a refining and standardizing process must be admitted without question, and the remedy lies within ourselves. Shall we accept the challenge? Then let the answer come, from men like you, in a manner to include the whole profession, setting forth, in itself, a principle and an action in no uncertain terms.

#### REMARKS ON CLOSING DISCUSSION.

\*\*\* And now, in closing, I simply want to make a recommendation; let us follow Missouri's example. It seems to me that Missouri has solved the problem of expert testimony, probably to the greatest advantage of the expert, and certainly to the greatest advantage, as to the means of presenting knowledge and presumptive facts, to the court. I am told that the medical profession of the State of Missouri (by this, I mean the State Medical Society), under an agreement with the legal profession of that State, selects a committee composed of a dozen men from their society whom they believe to be capable of rendering expert testimony to the court; and the legal profession of that State have agreed that the court may name, from this

committee, such men as are qualified to render the testimony required for the particular case. This, it seems to me, is the very best way of which we have knowledge at the present time of getting unbiased testimony before the court.

## THE HIGHER MISSION OF THE SURGEON.\*

*Samuel Spencer Memorial Oration.*

By PERCY W. TOOMBS, A.B., M.D., Memphis, Tenn.

I appreciate the courtesy, the privilege and the distinction of this inspiring hour. The day on which one is welcomed into fellowship with the free and courageous souls of that "noble type who live not for self alone, but the good of all," is a red-letter day in one's life, and to stand in this presence and witness the enthusiasm and devotion of men to the conservation of human life is to become imbued with hope and faith, and to be made stronger and fresher to battle for the amelioration of suffering and the prolongation of human life.

In the history of mankind there has been no sublimer and more merciful art than that of surgery—a history of progress from art to science and from science to art. To one who is a member of the profession, and who loves to dwell upon the qualities which it has given to the world, there is no more pleasing fancy than to linger about the shadows of the past, now consecrated by the valor of our triumphant heroes; to rest for a moment within the temple of the present; to catch and hold the uplifting inspiration that kindles the past into a fadeless glory.

Back through all the shadowy ages surgery has known its martyrs and its heroes. At the very dawn of history and all through the long twilight of the centuries the world was illumined by the valor of their deeds. The wonders wrought by Galen, Vesalius, Harvey and the Hunters were needed for the development of Cooper, Warren, Dupuytren, Billroth and von Graefe. These modest heroes poured the wealth of their treasured minds over the fruitful valley of the nineteenth century and blazed the way for von Langenbeck, Pasteur, Lister, and others, who launched us upon an era which is truly the most brilliant in the history of surgery. I would that on the broad sea of memory eloquence, from whose golden beach others have gathered pearls and shells of rare beauty, I might see drifting by

some flotsam of thought, poor on my own untutored lips, yet commensurate with the valor of these modest heroes.

It is a long cry from eulogy to surgery, and the higher mission of the surgeon is my theme. Ancient and honorable are its claims for consideration. Reverting from the high perfection of the science in this our day, its path across the centuries may be followed, in a simpler art and cruder form, through Greece, China, India and Egypt back to the nebulous characters and primitive symbols of prehistoric time.

Along this path, near the beginning of which stands the shade of Æsculapius, there have trod for centuries the feet of men, wise and good and great as many whom the world delights to know. The immortal Hippocrates is but a prototype of a profession which, for upwards of 2,300 years, has fought humanity's never-ending battle against the ravages of disease and the cold embrace of death. To recount the details of this warfare would require a miracle of epitomization. It would be like æons of struggle and triumph depicted on one jagged flash of lightning. I leave the story to those master tongues whose marvelous art and eloquence are not mine. If patience and industry be commendable; if study and thought be desirable; if versatility and resourcefulness be valuable; if genius and wisdom be admirable; if sympathy and self-sacrifice are yet held estimable; if prudence and courage and fortitude are qualities still deemed essential and creditable—then shall the members of this profession find high regard, for of these are they worthy exemplars. The cry of affliction is their incentive to superlative endeavor. Their quest is always the nepenthe and balm for the ills of suffering humanity. To them, poor hearts bowed down look up in hope and confident expectancy. It is not for me to boast—these hopes fulfilled, these expectations answered.

Let the blind speak into whose starless night has come the ecstasy of human faces in the full magnificence of the shimmering sunbeam on the wave. Let the deaf speak into whose dreary silence has come the sound of human voices and the music of the murmuring surf. Let the lame-born and deformed speak, to whose frail frame, but half made up, has come the erectness and the majesty of men. Let the helpless and incurable speak, the broken, downcast, human reeds, into whose wretchedness has come the skill that soothes an aching wound and the cheer that uplifts a bleeding heart.

These are not all—but let these speak for truth and gratitude, if language fails them not. Surgery is progressive and productive through the lull and

\* Read at sixteenth annual meeting of Association of Surgeons of Southern Railway, May 30, 1911.

calm of scientific peace as through the fire and smoke of professional controversy. Whether groping in the darkness of abstract speculation, or substantially building under the discipline of inductive philosophy, it has cherished and nurtured a living, growing, golden nucleus, whose segmentation constantly evolves new light, new truth, new power. So it happens that the complexus of things surgical, as known to us, differs widely from that which was observed in the experience of our fathers.

Electricity, chemical analysis, microscopy and the Roentgen rays have immeasurably enlarged the scope of diagnostic acumen. Hemorrhage is no longer staunched by boiling oil and smoking cautery. The shriek of agony no longer accompanies a reluctant surgeon's work. An almost bloodless knife now moves to its task while the patient is wrapped in a quiet oblivion which is the verisimilitude of restful sleep. The poisonous fangs of diphtheria have been at last extracted, and variola's loathsome clutches have been manacled forever. Huge tumors are no longer considered formidable, and hospital gangrene, once the incubus of surgery, has no longer a meaning in pathological nomenclature. Microbes that have been so long the enemy of mankind have been pressed into service, even as the elements have been enslaved. Vaccination, arterial ligation, anesthesia, antitoxins and antiseptics have been the media of these beneficent changes.

Jenner, Paré, Simpson, McDowell, Wells, Morton, Koch and Lister are the illustrious names whose crowning glory is found in these achievements. Surely it must be accounted a virtue often to recall their splendid deeds. Not to remember them would be to sound the deepest depth of ingratitude. The artist may long live beneath the soft skies of Italy and catch the brilliant outlines of her imposing ruins. The historian may run the course of her cruel conquest from the misty legions of Romulus to the brilliant but merciful advent of Christ; but whoever surveys with unclouded vision the history of surgery can but be impressed with the loftiness of the ideals, the nobility of the achievements, the manifold service which these master surgeons have rendered!

May not we as relief bearers to the suffering of our fellow creatures, catching the inspiration of a greater surgery, unfold the intellectual and analytical powers which have been bestowed upon us for grand and humane purposes, and develop the blessed heritage of older surgeons who have gathered and garnered through many years of earnest efforts in many fields of labor. It is a noble work that men do when they restore the reason and bring back the

man, but it is nobler still when men stretch out the humanitarian arm of "white handed hope, the hovering angel, gilt with golden wings," and make the victims of accident become the athletes of Olympian games! What is more thrilling, strange and terribly picturesque than to be plunged into the awful flood of crimson woe, with a shriveled limb dangling as if by a thread, and the hand of death beginning to freeze the weary and halting pulse! As we grope our way out of its enveloping gloom, are we not filled with gushing sympathy and inspired to fight through sleepless nights and days, hand to hand with death, hoping, working, struggling, refusing to give up? In the surgical heavens how divinely sacred and withal how surpassingly precious when we have seen the "lame to walk," the blind to see.

Ours is a true and noble calling. Genius dominates and inspires our science. It interests each of you whether you be an humble surgeon, unostentatiously performing your arduous labors in some small town, or whether you be some surgeon of world-wide fame in the crowded metropolis. The past has bequeathed to us a glorious heritage and destiny. The search-light of science is fast dispelling the shadows of ignorance. As by their matchless skill the older surgeons have wrought wonders in surgery, so may we realize the truth that in order to be as good as our fathers we must needs be better. We occupy no mean place in the esteem of mankind, and to feel that in the grand battle of life, though we have won no garlands of fame and our names are unknown beyond the smoke of the cabin door, we have alleviated the wounded, bleeding and sometimes homeless sufferer, is a glorious heritage.

May the morning dawn when every surgeon from orient to occident, from pole to pole, from mountain to shore, and from shore to the farthest island of the bounding sea, shall feel the glad sunshine of conservatism in surgery. May the day soon come when surgeons arising to the true and noble nature of their calling shall join in the glad acclaim to usher in the golden era of humanity and the universal conservation of man!

May we, as custodians of life and limb, when the clarion call sounds across the gulf of blood that heaves its red waves between the dismembered sections, flash the shining railway charity of conservatism, and act with a knowledge luscious with the fruit of ripened thought, and thus

"Restore to Earth, lost Eden's  
Faded bloom, and fling hope's  
Halcyon halo o'er the wastes of life."

1108 Exchange Building.

## THE RELIABILITY OF THE STATEMENTS OF THOSE INJURED IN RAILROAD ACCIDENTS.\*

By JOHN H. VASTINE, M.D., Shamokin, Pa.

The reliability of the statements of those injured in railroad accidents is of far reaching importance from a medical, surgical and medicolegal standpoint, and even more so to the railway surgeon, because of the large number of accidents and the tendency toward improperly exploiting them by those injured.

In a general way the reliability of the statements depends first upon the moral, mental and physical status of the individual previous to the accident. Whatever inclination he may show to deviate from the moral standard of justice will have a direct bearing upon his statements regardless of the degree and nature of the injury.

In determining the reliability of the statements of the individual from the standpoint of the direct influence of an accident we may consider first the influence of fear produced through the special sense of sight and hearing, his being thus forewarned before sustaining any injury, and then the direct effect of the accompanying trauma, as well as the receipt of an injury instantaneously without being forewarned. In the first class of cases the effect of fear depends upon the normal mental control of the individual and the freedom from toxic and narcotic influences. In the absence of these, the disorganizing effect of fear upon the mind of the individual varies from simple emotion to mental hebetude and amnesic aphasia. The injury accompanying fear in those forewarned may vary to any extent in nature and degree of severity, but the anesthetic action of fear is such as to abolish all sensibility to pain.

The effect of these injuries upon the statements of the individual is in proportion to their localization and the degree of tissue destruction. In head injuries, those which affect or disturb the physiological functions of the gray matter of the cerebral cortex, we may look for variances in the statements of the injured and their reliability.

In the second class of cases, those sustaining injuries instantaneously, the disorganizing effect of the forewarning fear upon the mind of the individual is eliminated, and we have to deal directly with the tissue destruction and the mental influence of shock from the trauma.

Considering the foregoing remarks, we have a direct cause for the unreliability of the statements

of the injured. In conjunction with the more or less disordered mental state we have the very marked susceptibility of the mind of the individual to the influence of suggestion by those who have been present and who are inspired by fair or unfair motives.

It is seldom that there can be obtained a perfectly reliable statement from a person directly following an accident, and the only way to gain this is by careful and frequent observation of the patient from the occurrence of the accident until sufficient time has elapsed for normal recollection and physical restoration to have become established.

## Surgical Gleanings

**Management of Inguinal Hernia in Childhood.** Dr. W. F. Campbell (*Med. Rec.*, Jan. 20, 1912) tells us to remember that in infants it is possible to obtain a spontaneous cure by maintaining continuous reduction by means of a truss, but after the second year the chances of cure by this method are doubtful. At this time, however, surgical treatment is eminently satisfactory and restores normal conditions at once. The rule then should be fairly uniform: (a) In infants apply a truss continuously as soon as the hernia is diagnosed. (b) After the second year consider radical operation if the nutritional index is favorable.

**Renal Tuberculosis.**—Dr. F. W. Robbins (*Jour. Mich. S. M. S.*, Feb., 1912) points out that a much larger portion of renal tubercular infections are unilateral than was believed ten years ago. An early diagnosis is of the highest importance. In a few very mild cases the x-ray or weak solutions of tuberculin in connection with the best hygienic conditions may, tentatively and with some hope, be employed. Nephrectomy is almost a sure cure in unilateral tuberculosis, and is not necessarily contraindicated even in the presence of tubercular disease of the bladder, the other kidney, or other organs. Gas anesthesia, as administered by Dr. E. G. Martin, is entirely sufficient for this operation, and attention to this one detail will lower the operative mortality in renal surgery.

**Movable Kidney.**—Dr. H. M. Tigert (*South. Pract.*, Feb., 1912) believes that in a vast majority of cases giving rise to symptoms (fifty per cent. give rise to none), operation is not indicated. For such cases palliative treatment, building up the general health as best we can, suggestions, and developing the abdominal and back muscles, is the best we can do. Lastly, there are a few cases where the symptoms are all referable to the kidney, which, when suitably selected and subjected to an operation with perfect technic, will make a perfect recovery.

\* Read at fourth annual meeting of Railway Surgeons' Association of Pennsylvania Lines East of Pittsburgh, Sept. 22-23, 1912.

**Chronic Appendicitis with Symptoms Resembling Gastric Ulcer.**—Dr. F. W. Bancroft (*Col. Medicine*, Feb., 1912) concludes: 1. Pyloric spasm accompanying chronic appendicitis may cause all the symptoms of gastric ulcer. Occult blood may be found in the stomach contents and possibly hematemesis may occur. 2. A kink of the terminal portion of the ileum may cause overdistension of the small intestines which in turn may cause a periduodenal inflammation with resulting adhesions around the pylorus, giving symptoms closely resembling duodenal ulcer. 3. In operating for chronic appendicitis, when the appendix does not show sufficient pathological lesion to account for the symptoms, an incision should be made large enough to examine the terminal portion of the ileum.

**End Result of Operation in Graves' Disease.**—Dr. G. W. Crile (*South. Med. Jour.*, Feb., 1912) states that since conducting operation on the new principle of anoci-association, and recognizing the importance of Kocher's progressive elimination of glandular activity, the mortality has all but disappeared, excepting in those that are potentially dead at the time of operation. Recent statistics of all cases will amount to about two deaths in one hundred. As to the end results, when the disease is of long standing in patients of poor physical structure, and whose financial and social circumstances permit of no mitigation of the strain of life during the time of convalescence, the results are correspondingly impaired. No patient died of the disease after leaving the hospital; one was made worse by the operation; otherwise every patient was either benefited or cured. Among the factors that influenced the end results were the environment of the patient, the freedom from nervous shocks, the means at hand for diversion, as well as the avoidance of strain and the elimination of all nervous shock at the time of operation. The improvement began usually the next day after the operation, and continued for from six months to two years. The author regards patients as cured when they are able to withstand nervous shocks, such as fright, disappointment, worry, grief in a normal manner.

**Paranephritic Abscess.**—Professor E. Herczel, cited in the *Wiener klin. Wochenschrift*, No. 4, 1912, believes that paranephritic abscesses in many instances develop from small pus collections in the renal cortex, instead of having a primary origin. In a case upon which he recently operated a diagnosis of paranephritic abscess was made from the symptoms—fever, pain in the left renal region, absence of pathological elements in the urine, no fluctuation or infiltration. After opening up the paranephritic connective tissue a considerable amount of thick pus was evacuated. Subsequently the fever subsided, and the patient was discharged from the hospital in fourteen days, but two or three days later rigors and fever returned with pain in the right kidney region. An incision on this side disclosed a slight edema of the capsule, which was adherent to the cortex at one place. On incising this a small pus focus was found, which was drained with gauze.

Recovery was uneventful. The unique feature of this case was the bilateral site of the small pus collections, only seven cases of this kind having been recorded in the literature. The second case was that of a married woman, thirty-one years old. The patient had suffered from an attack of abdominal pain and a stitch on the right side, after which she noticed a tumor growing in the abdomen. Her health failed and she was confined to bed. On examination at the hospital a hard, painful, irregular mass could be felt under the free border of the ribs, extending towards the renal region. A diagnosis of benign growth, connected with the kidney, was made and operation resorted to. In the renal area a hard callous mass of cicatricial tissue was found, as thick as two fingers, from the interstices of which pus could be expressed. Beneath this was a thick band of similar character. On exposure of the renal capsule four or five pus foci were detected. Prompt recovery followed evacuation of the pus. This case is of particular interest as showing how easily a paranephritic abscess can be confounded with a new-growth.

**Fleming's Skin Stitch.**—Dr. H. G. Wetherill (*Denn. Med. Times*, Feb., 1912) gives the following description of a skin stitch originated by Dr. C. K. Fleming, which he has used extensively and found very satisfactory: The cut edges of the skin are evenly brought together by stretching the wound with small tenaculum forceps, catching it at either end. The stitches, preferably of silk worm gut, are put in from a half to three quarters of an inch from the edge of the incision and from three-quarters to one and a quarter inches apart, depending upon the tension necessary to bring the edges together. Then the particular feature of Dr. Fleming's stitch is employed. As each stitch is picked up to be tied, the skin margins are caught with mouse-toothed forceps and carefully and evenly approximated *raw edge to raw edge*, precisely as is done in applying Mitchell's clips. As the first knot on the stitch is tightened, the forceps depress the skin margins in such a way as to leave a longitudinal ridge underneath the stitches. All of the stitches are tied in this manner, the ridge being thus prolonged from one end of the incision to the other. While Dr. Fleming used the ordinary square knot tied on one side of the incision, Dr. Wetherill makes three turns on the first half of the knot, without putting any second knot upon it. This allows the ends of the stitches to lie flat on the surface of the skin and avoids any enlargement of the knot itself. It has been his experience that these three turns rarely slip, even under considerable tension, if the stitches are close enough together. They are easily removed and help to splint the surface of the incision. The stitches may be removed from the seventh to the tenth day, and after the redness and slight swelling have disappeared the wound is found to be smooth and slightly, and, unless the patient happens to be one of those unfortunates predisposed to keloid or hypertrophic growth in scar tissue, the ultimate result will be quite satisfactory.

**Construction of an Artificial Vagina from Small Intestine.**—Dr. Halban (*Wiener med. Wochens.*, No. 49, 1911) proceeded as follows: After performing laparotomy he incised the peritoneal fold between the bladder and rectum, and then separated the bladder from the rectum as far up as the vaginal cul de sac. The second stage of the operation consisted in excluding a section of the small intestine and uniting the central and peripheral portions of the gut by lateral anastomosis; the third, in implanting the excluded intestinal segment into the vulva; the fourth, in suturing the incised peritoneal fold, leaving an opening for the passage of the mesentery of the implanted segment of gut. The final step consisted in enlarging the vaginal opening and suturing the gut into position. The operation proved a complete success from a functional point of view.

**Urinary Infection.**—Drs. B. Tenney and H. M. Chase (*Bost. Med. and Surg. Jour.*, Feb. 22, 1912), in a study of this subject, refer to the fact that bacteria of various sorts appear in the circulating blood and pass into the kidneys. These may filter through and leave no trace, or may damage the kidney in passing, or may make a prolonged and destructive stay therein. Our working theory based on these facts is that all causes producing obstructions to the flow of urine increase the chance of renal infection while they last, and the rest of the process depends on the appearance of certain bacteria at the favorable moment. Our treatment based on this is the attempt to remove all causes of back pressure and to reduce the supply of bacteria in the circulating blood in all reasonable ways. When the infection is known to be tubercular in only one kidney and the ureter is not greatly thickened, a few months of hygiene and the regular tuberculosis cure may be permissible for the patient whose pocket and disposition permit. A tubercular kidney with a thickened ureter in the average patient seriously interferes with his comfort and his convenience, is almost certainly a progressive menace to health, leads to an extremely painful last illness and needs nephrectomy like a malignant disease.

**Sexual Neurasthenia and the Prostate.**—Dr. G. Frank Lydston (*Med. Rec.*, Feb. 3, 1912) says that morbid prostatic conditions, involving especially the veru montanum, often underlie impotence. In such cases massage, silver instillations, or endoscopic applications of silver to the veru montanum often do excellent work. Not infrequently, however, all these measures fail completely. Unless the impotency is relieved, cure of the neurasthenia is impossible, hence any measure that holds out hope of relief should be adopted. It has been the author's experience that a very respectable proportion of cases of sexual neurasthenia associated with impotency are remediable by resection of the vena dorsalis penis. As to how far the psychic effect of the operation explains its benefits he is unable to say, but the local mechanical effects are obvious. The pa-

tient, noticing an immediate increase in the functional activity of the penis, is justified in having some psychic impressions from the operation, and, as these impressions run counter to those which have been a prominent feature of his sexual disability, the procedure would seem logical enough. Even a small proportion of cures would justify the operation, and, as the proportion is really large, he believes that the procedure should be generally employed in suitable cases. It is hardly necessary to say that proper surgical technique is essential. In a large proportion of cases that have been submitted to the operation the cutaneous vein has been resected and the failure charged up to the operation. It should be unnecessary to say that the dorsal vein and the dorsal cutaneous vein are not the same.

**Resection and Total Extirpation of the Bladder.**—Professor Rovsing, cited in the *Deut. med. Wochens.*, No. 49, 1911, has collected 58 cases of total extirpation of the bladder from the literature, including his own operations. In his opinion resection is rarely indicated in tuberculosis of the bladder, or tumors of doubtful malignant origin confined to the vesical mucous membrane. On the other hand, in cases of malignant growth it is necessary to choose between resection with a mortality of 41.4 per cent. and total extirpation with a mortality of 50 per cent. The author is inclined to believe that the mortality of the latter procedure can be essentially reduced by adopting his own method, the essential features of which are to open up the bladder by exposing it through a transverse or suprapubic incision after gently filling it with an antiseptic fluid, and then removing it subperitoneally, if possible, just as one would a cystic pelvic tumor.

**Treatment of Tuberculous Adenitis.**—Dr. J. B. Hawes (*Bost. Med. and Surg. Jour.*, Jan. 18, 1912), in a report of 56 cases from the tuberculin clinic of the Massachusetts General Hospital and from private practice, expresses the opinion that every large dispensary or out-department should have a special clinic for the treatment of this class of tuberculous patients. To get good results in the treatment of tuberculous adenitis he believes it to be more important to treat the patient than to devote one's attention solely to the tuberculous process in the glands. The physician should not depend upon surgery alone, hygiene alone or tuberculin alone, but should use all or each of these measures as is required by the individual patient. Out of this series of 56 cases treated with hygiene, diet, tuberculin, in 27 the disease has been apparently cured or arrested, and in 16 others the condition of the patient was improved, while the number of cases in which there was no improvement after a fair trial was very small. The present tendency of the surgeons in the Massachusetts General Hospital is to send the patients to the tuberculin clinic, and, except in cases of actively suppurating glands, not consider surgical interference until later.



**Total Extirpation of the Stomach.**—Dr. N. Trinkler (*Archiv f. klin. Chir.*, Bd. 96, Hft. 2) reports the case of a woman, fifty-seven years old, who suffered from a tumor occupying the posterior wall of the stomach, the lesser curvature, and part of the anterior wall. The entire stomach and a portion of the omentum adherent to it were removed and the esophagus sutured to the duodenum, an opening being left in front for drainage and tamponade of the esophagus. Six days after operation, owing to the progressive inanition, an artificial fistula had to be established in the jejunum, but the patient died two days afterward from exhaustion. The author has been able to find twenty-six cases of total extirpation of the stomach in the literature, with thirteen deaths directly attributable to operation.

**Injuries of the Ureters in Gynecological Operations.**—Dr. W. Stoeckel, cited in the *Muench. med. Wochensch.*, No. 3, 1912, presents the following conclusions on this subject: Ureteral fistula in obstetrical practice are almost a thing of the past, while those occurring after gynecological operations seem to be on the increase. In operating for benign affections of the genital tract they can be prevented, but not always in cases of malignant tumors. While a healthy ureter can be isolated from its normal surroundings for a considerable distance, this cannot be done with impunity when it has to be dissected out from an enveloping mass of cancerous infiltration. To overlook a ureteral injury in laparotomy is a serious error. The diagnosis of such a trauma, whether it consists in accidentally ligating the ureter or producing a fistula, is best made by means of cystoscopy and ureteral catheterism. Partial ureteral fistulae show a tendency to spontaneous healing, although it has not been determined in how far function is preserved in such cases. Direct plastic operations upon these fistulae by way of the vagina, or extraperitoneal implantation of the ureter into the bladder, have been discarded, and it has been found that intra-peritoneal implantation, if the bladder and kidney are healthy, constitutes the best procedure. Nephrectomy is to be reserved for ureteral fistulae which have led to infection of the renal pelvis or kidney. Exclusion of the kidney in case of an impassable ureter is to be considered only if in a laparotomy so large a portion of this tube is lacerated that its implantation into the bladder is impossible.

**Automobile Fractures.**—Dr. W. H. Winterberg (*Calif. S. Jour. Med.*, Feb., 1912) classifies under this head cases of fracture of the lower and usually outer end of the radius caused by the sudden and violent reversal of the starting crank of an automobile, the so-called "kick back." Only those produced indirectly by the force acting through the palm of the hand are meant. The x-ray picture in a typical automobile fracture will show a fracture line in the lower end of the radius below the usual site of a Colles' fracture. This line runs either transversely across the bone, or what is more

common obliquely into the joint. There is no impaction, no displacement and consequently little or no deformity. There is as a rule no crepitus, little deformity, swelling, pain or discoloration. The loss of function also is slight, though rather greater than the other clinical symptoms would call for. Gentle motion can be made, forced ones are painful. There is a distinct point of tenderness on the lower and outer end of the radius, and this clinical sign is always present and shows in this fracture perhaps more than any other the value of pressure point tenderness in the diagnosis of fractures. The diagnosis must often be made from the history and this sign alone. An x-ray is to be taken when possible. In regard to treatment, the less done the better, as a rule. Any attempt to improve the slight deformity is unnecessary. The author's cases proceeded to a speedy and full functional recovery without any manipulations. He recommends immobilizing, and after a week daily massage and motion of the joint. Recovery is usually complete in three weeks.

**Puncture of the Corpus Callosum for Relief of Cerebral Pressure.**—Drs. Anton and von Bramann (*Muench. med. Wochensch.*, No. 45, 1911) summarize their experience with this method in the following conclusions: 1. Puncture of the corpus callosum is a simple operation by means of which relief of cerebral pressure can be effected by way of the roof of the lateral ventricles without injury to the cortex. 2. A communication can thus be established between the ventricle and subdural space for a long time, and this can be kept open for at least several months in conditions of persistent pressure. 3. The cerebrospinal fluid is thus afforded not only a larger area for diffusion, but also a more extensive surface for absorption, one cavity being connected with another without the necessity of drainage tubes. 4. It is possible to establish communication between the third ventricle and the other brain cavities, which may be desirable in cases in which it is distended. If there is any suspicion of the presence of a neoplasm or cyst in the fourth ventricle, puncture of the corpus callosum may be indicated for the temporary preservation of sight, since it has been found that after this procedure choked disc may be diminished or at least prevented from progressing to any extent, and also because the preliminary relief of general cerebral pressure will prove of value during the preparatory stage before operation. It is advisable in such cases to open up the cerebellum and fourth ventricle as soon as possible. In two cases after trephining the occipital region and drainage of the fourth ventricle disappearance of choked disc was observed.

In the preoperative diagnosis the surgeon must have the assistance of a clinician equally trained in his line to look at the medical aspects of the case. Both the physician and the surgeon require a corps of assistants to make the various laboratory examinations, or inspections with instruments of precision. There must, therefore, be team work and, to a certain extent, an all-star team to give the operative patient the best chances of recovery.—Dr. J. C. Bloodgood (*Pa. Med. Journal*, Jan., 1912).

# Monthly Index of Surgery and Gynecology

- Acute Spontaneous Perforation of the Biliary System into the Free Peritoneal Cavity. Report of Six Cases and 108 Cases from the Literature (An. of Surg., Feb., 1912). C. A. McWilliams, New York.
- Aluminum Acetate in Local Inflammations, the Use of (Am. Jour. of Surg., Feb., 1912). H. H. Stansbury, Baltimore.
- Appendicitis and Sigmoidal Diverticulitis, Impressions of (Indianap. Med. Jour., Feb., 1912). J. R. Eastman, Indianapolis.
- Arteriovenous Anastomosis—Reversal of the Circulation—as a Preventive of Gangrene of the Extremities (An. of Surg., Feb., 1912). B. M. Bernheim, Baltimore.
- Ascites Due to Liver Cirrhosis, Remarks on the Operative Cure of (Brit. Med. Jour., Jan. 20, 1912). R. Morison.
- Atrophic Arthritis (Surg., Gyn. and Obst., Feb., 1912). A. R. Shands, Washington, D. C.
- Cancer of the Stomach: Its Surgical Cure (Surg., Gyn. and Obst., Feb., 1912). W. J. Mayo, Rochester, Minn.
- Cesarean Section and its Alternatives in Suspect and Septic Cases (Am. Jour. Obst., Feb., 1912). R. Peterson, Ann Arbor, Mich.
- Cesarean Section for Puerperal Eclampsia; Report of Three Successful Cases with Three Living Children (Jour. Tenn. S. M. A., Feb., 1912). W. D. Haggard, Nashville.
- Cesarean Section: Its Field of Usefulness in Abnormal Obstetrics (Charl. Med. Jour., Feb., 1912). J. P. Proctor, Athens, Ga.
- Cesarean Section the Second Time in Two Cases (Jour. Mich. S. M. S., Feb., 1912). J. H. Carstens, Detroit.
- Cholecystitis, Surgical Treatment of (Lanc.-Clin., Feb. 3, 1912). L. Frank, Louisville.
- Chronic Duodenal Ulcer, Some Points in the Diagnosis and Treatment of (Lancet, Jan. 6, 1912). B. G. A. Moynihan, Leeds.
- Compound Fractures, Treatment of (Ill. Med. Jour., Feb., 1912). C. Beck, Chicago.
- Congenital Idiopathic Dilatation of the Colon—Hirschsprung's Disease (Northw. Med., Feb., 1912). J. F. Critchlow, Salt Lake City.
- Conservation of Sound Ovaries and Tubes in Hysterectomies Near the Menopause, Except in Malignant Disease (Surg., Gyn. and Obst., Feb., 1912). R. L. Dickinson, Brooklyn, N. Y.
- Cystocele, Anatomic Operation for Cure of (Am. Jour. Obst., Feb., 1912). G. R. White, Savannah, Ga.
- Damaged Intestine, a Method of Treating Without Resection (Brit. Med. Jour., Jan. 20, 1912). H. B. Angus.
- Decompressive Operations for Fracture of the Base of the Skull (Jour. A. M. A., Feb. 17, 1912). R. L. Payne, Norfolk.
- Deformities of the Neck (Jour.-Lanc., Feb. 1, 1912). R. E. Sayre, New York.
- Diagnosis and Treatment of Diseases of the Biliary Tract, Remarks on, with Especial Reference to the Difficulties and Dangers (St. Paul Med. Jour., Feb., 1912). M. H. Richardson, Boston.
- Different Approaches to the Hip-joint, with Special Reference to Operations for Curved Trochanteric Osteotomy and for Arthrodesis (Bost. M. and S. Jour., Feb. 15, 1912). E. G. Brackett, Boston.
- Displacements of the Kidneys and Colon (Jour. Mich. S. M. S., Feb., 1912). H. W. Longyear, Detroit.
- Diverticula of the Urinary Bladder, the Surgical Treatment of (An. of Surg., Feb., 1912). W. Lerche, St. Paul, Minn.
- End-results of Operation for Graves' Disease (South. Med. Jour., Feb., 1912). G. W. Crile, Cleveland.
- End-results of Surgery in Neurasthenics and on Neurasthenia (Bost. Med. and Surg. Jour., Feb. 22, 1912). E. Reynolds, Boston.
- Epithelioma of the Lower Lip, Prophylaxis and Treatment of (An. of Surg., Feb., 1912). D. W. Montgomery, G. D. Culver, San Francisco.
- Error of Overlooking Ureteral or Renal Stone under the Diagnosis of Appendicitis (An. of Surg., Feb., 1912). M. H. Richardson, Boston.
- Extrauterine Pregnancy, the Diagnosis, with Report of Two Cases of Primary Ovarian Pregnancy (Canad. Jour. Med. and Surg., Feb., 1912). J. A. Macleod, Buffalo.
- Fixation of Colon, an Improved Method of (Surg., Gyn. and Obst., Feb., 1912). F. G. Connell, Oshkosh, Wis.
- Fracture of the Neck of the Femur, Remarks on the Science and the Art of Surgery, as Applied in the Treatment of (N. Y. S. Jour. Med., Feb., 1912). R. Whitman, New York.
- Fractures, Treatment of Non-Union of (Jour. A. M. A., Feb. 3, 1912). J. S. Horsley, Richmond.
- Gastric Symptoms in Biliary Disease (N. Y. Med. Jour., Jan. 27, 1912). H. Lillenthal, New York.
- Hernia, a Review of Recent Methods for the Radical Cure of (Brit. Med. Jour., Jan. 20, 1912). H. H. B. Macleod.
- Hydronephrosis, Intermittent, the Early Diagnosis of (Surg., Gyn. and Obst., Feb., 1912). O. S. Fowler, Denver.
- Indications for Surgical Interference in the Treatment of Tuberculous Joint Disease in Children, with Remarks as to the After-results (Lancet, Jan. 6, 1912). A. H. Tubby, London.
- Inguinal Hernia (Lanc.-Clin., Feb. 10, 1912). C. T. Souther, Cincinnati.
- Injuries of the Abdomen (Vt. Med. Mo., Feb., 1912). E. J. Melville, St. Albans, Vt.
- Injuries of the Shoulder and their Relation to Some Conditions of the Upper Extremity of Obscure Origin (Therap. Gaz., Feb., 1912). T. T. Thomas, Phila.
- Iodine in Surgery (Interst. Med. Jour., Feb., 1912). H. A. Baldwin, Columbus, O.
- Interpretation of Uterine Curettings (Am. Jour. Obst., Feb., 1912). R. T. Frank, New York.
- Interscapular-thoracic Amputation (Calif. S. Jour. Med., Feb., 1912). H. A. L. Ryfkogel, San Francisco.
- Jejunal and Gastrojejunal Ulcers (Brit. Med. Jour., Jan. 6, 1912). A. W. Mayo-Robson, London.
- Lane Operation for Chronic Constipation, with Report of Two Cases (Surg., Gyn. and Obst., Feb., 1912). G. T. Vaughan, Washington, D. C.
- Lane's Kink with Report of Cases (Northw. Med., Feb., 1912). M. M. Patton, Spokane, Wash.
- Laminectomies, Observations upon a Series of Forty-three (An. of Surg., Feb., 1912). C. A. Elsberg, New York.
- Local Anesthesia in Major Surgery (N. Y. Med. Jour., Feb. 17, 1912). A. S. Morrow, New York.
- Local Anesthesia in Traumatic Surgery (Am. Jour. Surg., Feb., 1912). S. J. Young, Chicago.
- Matas Operation in Treatment of Traumatic Aneurysm (N. Y. Med. Jour., Feb. 17, 1912). W. C. G. Kirchner, St. Louis.
- Method of Dealing with the Sac in Large Inguinal Hernias (Surg., Gyn. and Obst., Feb., 1912). H. Fischer, New York.
- Modified McBurney Incision (Surg., Gyn. and Obst., Feb., 1912). R. H. Fowler, Brooklyn, N. Y.
- New, Simple and Effective Tourniquet for Controlling Hemorrhage of the Scalp (Jour. A. M. A., Feb. 17, 1912). E. Laplace, Phila.
- Nitrous Oxid and Oxygen Anesthesia in Major Surgery (Jour. A. M. A., Feb. 10, 1912). F. Allen, Boston.
- Nitrous-Oxid-Oxygen Anesthesia (Old Dom. Jour. Med. and Surg., Feb., 1912). M. J. Alexander, Richmond.
- Omentum, the Value of (Denv. Med. Times, Feb., 1912). F. C. Buchtel, Denver, Col.
- Parathyroids and their Surgical Relation to Goiter (An. of Surg., Feb., 1912). C. H. Mayo, B. F. McGrath, Rochester, Minn.
- Percentages of Ether Vapor Administered in So-called "Open Ether" Methods, on the (Lancet, Jan. 27, 1912). Sir F. Hewitt, London.
- Perforation of Gravid Uterus; its Prevention by Proper Technic (N. Y. Med. Jour., Feb. 10, 1912). S. Wiener, New York.
- Prevention of Shock (Am. Jour. Obst., Feb., 1912). J. H. Carstens, Detroit.
- Prolapsus Uteri, Treatment of, by Vaginofixation (Am. Jour. Obst., Feb., 1912). E. P. Lothrop, Buffalo.
- Prostatectomy and its Indications in Prostatic Hypertrophy (Am. Jour. Urol., Feb., 1912). T. Rosing, Copenhagen.
- Prostatic Abscess (West. Med. Rev., Feb., 1912). A. C. Stokes, Omaha, Neb.
- Prostatic Obstruction, Relief of (N. Y. Med. Jour., Feb. 3, 1912). J. B. Squier, New York.
- Pyosalpinx, Two Hundred Cases of (N. Y. Med. Jour., Feb. 10, 1912). H. A. Dunlap, Phila.
- Regeneration of Nerves, an Investigation, with regard to the Surgical Treatment of Certain Paralysis (Brit. Med. Jour., Jan. 27, 1912). B. Kilvington, Melbourne, Australia.
- Removal of Extramedullary Tumor of Cervical Cord. Recovery (Brit. Med. Jour., Jan. 27, 1912). J. M. Clarke, Bristol.
- Renal Infections (Am. Jour. Dermat., Feb., 1912). W. R. Jamieson, El Paso, Tex.
- Renal Tuberculosis (Jour. Mich. S. M. S., Feb., 1912). F. W. Robbins, Detroit.
- Resources of Surgery in Certain Emergencies (Lancet, Jan. 20, 1912). C. A. Ballance, London.
- Röntgen Rays in Hypertrophied Prostate: A Therapeutic Study (Am. Jour. Med. Sc., Feb., 1912). J. W. Hunter, Norfolk, Va.
- Sarcoma of the Tongue and Conditions which Simulate it (Am. Jour. Med. Sc., Feb., 1912). E. M. Foote, New York.
- Scarlet Red in Treatment of Wounds (Pa. Med. Jour., Feb., 1912). J. Leedom, Phila.
- Section of Posterior Spinal Nerve-Roots for Relief of Gastric Crises and Athetoid and Choreiform Movements. Report of Two Cases (Jour. A. M. A., Jan. 27, 1912). R. Winslow, I. J. Spear, Baltimore.
- Selection of Surgical Needles (Denv. Med. Times, Feb., 1912). C. E. Tennant, Denver.
- Sterility in Women, Surgical Treatment of (Lancet, Jan. 27, 1912). F. J. McCann, London.
- Surgical Anesthesia and Shock (Jour. S. C. M. A., Feb., 1912). S. C. Baker, Sumter, S. C.
- Surgical Conditions of Childhood (Va. Med. Semi-Mo., Feb. 9, 1912). J. T. Buxton, Newport News, Va.
- Suturing Bloodvessels, Notes on the Technic of, with a New Instrument (An. of Surg., Feb., 1912). J. S. Horsley, Richmond.
- Tacks and Nails in the Air-Passages: Bronchoscopy (Jour. A. M. A., Feb. 17, 1912). E. F. Ingals, Chicago.
- Tilting the Soles of Boots and its Use as a Means of Treatment in Various Common Conditions (Edinb. Med. Jour., Feb., 1912). D. Cotterill, Edinburgh.
- Transposition of the Uterus and Bladder in the Treatment of Extensive Cystocele and Uterine Prolapse (Am. Jour. Obst., Feb., 1912). T. J. Watkins, Chicago.
- Tumors of the Bladder (Ohio S. Med. Jour., Feb., 1912). C. M. Harpster, Toledo.
- Ununited Fractures and Delayed Union in Fractures, Treatment of, by Injection of Blood (Del. S. M. Jour., Feb., 1912). W. W. Babcock, Phila.
- Up-to-Date Methods of Anesthesia (Jour. A. M. A., Feb. 17, 1912). J. C. Gwathmey, New York.
- Ureteral Catheterization as a Therapeutic Measure (Am. Jour. Urol., Feb., 1912). H. Lillenthal, New York.
- Urethral Calculi, with Special Reference to Encysted Calculi of the Prostatic Urethra (Brit. Med. Jour., Jan. 6, 1912). K. W. Monsarrat, London.
- Urgent Condition in Abdominal Surgery (Jour. M. S. N. J., Feb., 1912). J. W. Kennedy, Phila.
- Ventral Hernia, Prevention and Treatment of (Surg., Gyn. and Obst., Feb., 1912). E. S. Judd, Rochester, Minn.

# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

APRIL, 1912

No. 4

## Original Articles

### VARIOUS ULCERATIONS OF THE MALE GENITALIA.

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In entering upon a discussion of the various ulcerations of the male genital organs, the writer wishes to confine himself solely to a delineation of the most salient *etiologic* and *diagnostic* features of each individual type. The treatment will readily suggest itself to the practitioner when thus based upon a thorough conception of these factors. For convenience of study, the author has had recourse to a system of classification that to his knowledge has never been attempted heretofore. Formerly only two or three types, at the most, of this classification have been recognized; the others, owing to their rarity or lack of proper etiological interpretation, have either been but cursorily mentioned or entirely omitted in text-books and journals. *En passant* it may be remarked that the term ulcerations of the male genitalia or male genital organs merely appertains to an involvement of the *external genitalia*, i. e., from the glans penis to the mons veneris, and that area extending along the scrotum to the perineum and anus, the latter inclusive. Ulcers found within the mucous membrane of the urethra and bladder do not belong within the scope of this paper.

The ulcerations of the male genitalia may be divided as follows:

1. The neuropathic or herpetic ulcer.
2. The gonococcic ulcer.
3. The infecting ulcer or chancroid.
4. The initial sclerema or chancre.
5. The simple or idiopathic ulcer.
6. The leprotic ulcer.
7. Ulcerations due to errors of metabolism and the different dyscrasias.
  - (a) The ulcers of nephritides.
  - (b) Those due to the uricemic state.
  - (c) Scorbutic ulcerations.

(d) Ulcers accompanying hemophilia.

(e) Ulcers caused by diabetes.

(f) Hemopoietic or trophic ulcers.

8. The malignant ulcer or epithelioma.

9. The tubercular ulcer and lupoma.

10. Atypical, obscure and unclassifiable ulcerations.

11. Erosions and ulcers due to eczema, lichen, psoriasis, ecthyma, blastomycetes, and various other parasitic dermatoses.

12. Ulcers resulting from papillomata and other forms of vegetations.

13. Ulcerations following in the course of endarteritis obliterans of the extremities.

1. *The Neuropathic or Herpetic Ulcer.* *Coitus* is not the only cause of this type of ulcer; irritations of all kinds may be responsible for its causation. It may usher in spontaneously without any appreciable cause, and is chiefly observed in *neurotic individuals*. We occasionally discern a certain feature of *periodicity* in its production. An *elongated and tight prepuce* may serve as a cause, and yet after circumcision it seems to recur as persistently as ever. These ulcers never appear singly, but in groups with intervening healthy skin or mucosa. Their selective locations are the external and mucous surfaces of the prepuce, the sulcus, frenum and corona glandis. Another favored spot is the edge or margin of the prepuce. They are also observed on the scrotum, dorsum of the penis and the urethral mucous membrane. They first herald their advent by an erythematous patch or area, upon which within a short time small vesicles develop that do not tend to rupture readily; but owing to pressure the vesicles eventually burst, leaving minute erosions; the latter finally coalesce and form small ulcers. Scabbing soon takes place and the entire process is completed within a week or ten days, provided no new crops appear. Subjective symptoms, such as slight pain, pruritus and tingling are, as a rule, present. If left unmolested by overzealous treatment, and merely protected from external irritation, they pursue a favorable course, but if infected or overtreated, they may become indurated

and thus mar the diagnosis. Occasionally it happens that the lymphatics in the proximity of the ulcers are involved, and red nodular lines may be seen running along the dorsum of the penis to the inguinal glands, which, in their turn, may become infected. As a general rule, these lesions heal kindly, with very little or no treatment.

We must constantly bear in mind the possibility of herpetic ulcers becoming infected with chancroidal virus and the spirocheta pallida, either subsequently or as a result of a simultaneous infection after the primary period of incubation has elapsed.

2. *The Gonococcic Ulcer.* In unclean individuals, especially in those who have an elongated prepuce and a narrow preputial cavity, gonorrheal discharge may accumulate and give rise to erosions of the glandular epithelium; these, if not taken care of, may be eventually converted into veritable ulcers with extensive distribution, at times occupying the entire glans penis and mucosa of the prepuce. There should be little difficulty in diagnosing such ulcers, for the etiologic factor is apparent at a glance; and yet errors are not infrequently made and such ulcers have been regarded as chancroidal in nature. A close scrutiny will always enable the physician to determine their exact character and thus to institute adequate treatment.

3. *The Infecting Ulcer or Chancroid.* Much has been written as regards this form of ulcer. The possibility of a *mixed infection* must never be dismissed. There are, however, certain characteristic features that serve as guides to the diagnosis, namely: *The short period of incubation in its development; its multiple tendency, the appearance of the ulcer per se, that invariably exhibits a "worm-eaten" base, undermined edges, abundant secretion, and the presence of subjective symptoms—signs that definitely point to the existence of a chancroid.* When it attacks the frenum, it may assume a phagedenic character, destroying it, and when laying open the artery of the frenum, may be followed by alarming hemorrhage. Chancroids are prone to be very obstinate, healing in one place and breaking out in another locality. Again they may adopt a serpiginous tendency, spreading in spite of our interference, implicating the neighboring glands, eroding them and transforming them into similar lesions. They have been known to spread along the mons veneris to the abdomen and along the scrotum and perineum towards the anus. Through their persistency and tendency to extension they have been known to inaugurate a certain form of marasmus. Chancroids are highly contagious and are the most virulent and protracted of all venereal ulcers.

4. *The Initial Sclerema or Chancre.* If one bears in mind the intrinsic characteristics of this lesion, errors are apt to occur but rarely. The *prolonged period of incubation, the indurated margins and base* which feels as if a cartilaginous ring were embedded in the tissues, the comparatively *clean* appearance of the ulcer, the *lack of subjective symptoms*, its singleness (unless concomitant with a chancroid—a mixed infection), together, if necessary, with a *positive Wassermann*, should serve as distinctive points in determining the nature of the lesion. Later on the secondaries will assuredly either confirm or reverse our diagnosis. Of all ulcers of the genitalia, the initial lesion should afford but little diagnostic difficulty.

5. *The Simple or Idiopathic Ulcer.* This type of ulcer is not infrequently met with as a result of *irritation or uncleanness*. It bears no resemblance to any of the forms enumerated above or to be described subsequently. The only assignable cause, as intimated before, is some kind of irritation from without. They are single, and in appearance resemble an abraded herpes vesicle, though somewhat larger than the latter; they are somewhat painful and mainly situated on the dorsum of the penis. An infected sebaceous follicle may possibly be their starting point. They pursue a brief course, healing kindly. The loss of substance being so superficial, they leave but a slight or no cicatrix behind.

6. *The Leprotic Ulcer.* During the course of leprosy anesthetic macular areas appear on the body of the penis that may be transformed into ulcers. Very little needs to be remarked as to their identification. The presence of leprotic lesions elsewhere and the history of a given case will readily clear up the diagnosis. There are no pathognomonic diagnostic features whereby these ulcers may be recognized.

7. *Ulcerations Due to Defective Metabolic States and Different Systemic Dyscrasie.* We now approach a type that has been a matter of controversy by many clinicians as to the mode of classification. That certain metabolic processes are responsible in the production of erosions and ulcers has been a fact long established by authorities. But the rationale as to their causation, the exact process that determines these lesions, has never been satisfactorily elucidated. For a while the ductless glands have been taken to task for their causation; then again the pendulum has swung towards certain toxic products circulating in the blood stream, and finally the nervous system, i. e., lack of innervation, has been put forth as an etiologic factor. It is true that some of these explanations may rest upon a rational hy-

pothesis; yet, in the majority of instances we are still puzzled as to their etiology. When the disease causing them and of which they are but a symptom is coexistent, then we have a ready means which enables us to treat these lesions appropriately. But in a number of cases these ulcerations are but the forerunners of certain constitutional states or diseases of metabolism that make their appearance much later. Under these circumstances, we will have to study the lesions, observe the minutest detail in their development, and have an outlook upon any and all intercurrent symptoms that may arise in conjunction with the local process. It is superfluous to say that a thorough hematologic and urinary examination, both chemical and microscopical, quantitative and qualitative, should be instituted in all doubtful cases where the cause of an ulcer seems inexplicable or obscure to us. Occult metabolic states may then become apparent to us, and the result may now be more satisfactory. The following are the forms of ulcerations that are the result of or symptomatic to certain pathological metabolic states. It is well to intimate right here that these ulcers possess absolutely *no distinctive diagnostic features* and, as remarked above, will have to be recognized solely by the underlying pathologic condition. The subjoined types of ulcerations have been recognized to be due to various defective states of metabolism:

- (a) Ulcers due to the different nephritides.
- (b) Ulcers due to the uricemic state.
- (c) Ulcers the result of scurvy.
- (d) Ulcers the result of hemophilia.
- (d) Ulcers found in the course of diabetes.
- (e) Hemopoietic or trophic ulcers.

The last type is not infrequently found in anemic states. There are cases of Hodgkin's disease on record that have been accompanied by ulceration of the genitalia. There were no particular signs whereby they could be recognized. Their diagnosis and treatment largely depend upon the pathologic state that underlies them.

Of vastly greater importance is the following heading, which deals with a type that has always received the paramount attention of the clinician and surgeon. Much has been done in this field and much may be expected, if reliance be placed upon investigations that are being conducted diligently in laboratories abroad and here. This type is the most malignant ulceration of the genitalia, viz.:

8. *The Malignant Ulcer or Epithelioma.* This is an insidious type of ulcer. Although at first simulating a simple ulceration, its termination is almost always fatal. It is not always recognized at a time

when a radical operation would have done the most good. Patients usually come to us late in the course of an epithelioma, when the lymphatics are involved, or metastasis has taken, or is about to take place. Fortunately it is an affection of advanced age; yet we find it also during adolescence. The causative element, both as to the predisposition and exciting cause, has not been clearly established. Various theories have been advanced to account for these malignant ulcerations, but none of them satisfactorily explains. Every one is acquainted with the embryonic theory of Cohnheim, with the irritation theory, with the late protozoic theory, etc. One positive thing remains, that this type of ulceration is the most malignant of all. Its favorite location is the glans and prepuce. It may start as a benign and insignificant looking ulcer, but it soon shows a tendency to spread in contiguity and depth. It may or may not assume a cauliflower appearance; its edges and margins are usually indurated; its base is pul-taceous and necrotic and the odor extremely offensive and fetid. The inguinal glands in both groins soon become indurated and the patient develops the cancerous cachexia. There is no other form of ulcer that occasions so much *pain* as an epithelioma. The pain and suffering are unbearable and ultimately the patients gradually dwindle away and die from marasmus.

This recalls to the writer's mind a case of epithelioma of the penis\* in an aged man that had remained undiagnosed for nine months. The inguinal lymphatics were involved, and the entire glans penis eroded by a large cauliflower mass. The pain was extreme and the cachexia pronounced. The penis was removed as close to the peno-scrotal junction as was permissible, the mucosa of the urethra everted and sutured to the tissue of the penile stump. He lived for some time, but eventually developed metastasis of the internal organs. *Early and radical extirpation* should be practised on all occasions, and even this offers very little chance for recovery, for recurrences are apt to set in, or else metastases may close the scene.

9. *The Tubercular Ulcer and Lupoma.* Tubercular ulcers of the penis are but rarely encountered. They may be accompanied or caused by a tubercular focus elsewhere. At times they assume a considerable size. One that came under the writer's observation was fully the size of a dime. They usually assume an indolent aspect. Their favorite location is the glans penis. They appear as if *excavated*; their edges are abrupt and as a rule they are *painless*. An indolent or stationary lymphangitis and

\* Reported in the Columbus Medical Journal, 1900.

adenitis is apt to complicate this type of ulcer. It is remarkable that the general health is very little affected by it. Their *indolency* is a marked diagnostic feature. They must be differentiated from the initial lesion and chancroid. The subjective symptoms in chancroid are always more pronounced. The tendency toward extension is a marked feature in the latter. The initial lesion is apt to be of shorter duration, in contra-distinction to the tubercular ulcer, which remains indolent for months or years. The tubercle bacillus has been found on microscopic examination. Several observers have also encountered lupus ulcer on the genitalia. Their identity with the tubercular ulcer is the same, and the mode of treatment would consequently be identical in both cases.

10. There is a class of ulcerations that do not belong to any of the types and forms enumerated above. Their exact causation is unknown; they can merely be termed *obscure or atypical ulcerations*. They are of short duration and excite little attention.

11. Certain *dermatoses*, such as eczema, lichen, psoriasis and ecthyma are apt to give rise to erosions and ulcerations when appearing on the genitalia. Ecthyma in particular may induce deep seated ulcerations on the dorsum of the penis with massive scabbing. Coccigenetic lesions are at times found on the genitalia. Though at first appearing as furuncular lesions, they frequently undergo central necrosis with subsequent ulcerations of the parts involved. Psoriasis has been known to cause superficial erosions on the genitals. Blastomycetic ulcers have been likewise recorded by observers. Vesicular eczema, when irritated or overtreated, may produce erosions of the penis and scrotum.

12. Ulcers resulting from *papillomata* and other forms of *vegetation*. So-called "venereal warts," so common on the genitals, may become ulcerated. The latter will nearly always exhibit some vestiges of the previous wart. The margin is red and highly inflamed, and exceedingly painful. The presence of other warts will readily determine the diagnosis. It must not be forgotten that ulcerations following papillomata in aged people are apt to degenerate into malignant ulcers, and a sharp lookout should be kept for such contingency.

13. Ulcers of the penis following or accompanying *endarteritis obliterans* of the extremities require only brief mention. Personally the author has never seen such a case, but several observers have recorded such instances. They must be extremely rare, and, to judge from the course of this affection on the extremities, the prognosis is exceedingly grave.

In conclusion the author desires to say that the above exposé of this very important topic is but a fragmentary attempt, at its best; greater elaboration is needed. But he flatters himself with the hope of having indicated at least the more salient features concerning the etiology and diagnosis of the various ulcerations of the male genitalia.

32 Adams Avenue, West.

## PANCREATITIS.

By J. PRESCOTT GRANT, M.D., New York.

Two years ago, while working on the gastrointestinal tract of the dog, especially in making Thiry-Vella fistulæ to test the absorptive power of the various parts of the intestine, I found that operations on the duodenum were exceedingly fatal, the dog being dead on the third day. The post mortem revealed fat-necrosis in the omentum and other structures, blood stained fluid in the peritoneum, and a soft, swollen pancreas. These findings led us to use the greatest care in tying off the pancreas; still we continued to lose our dogs and found the same post mortem changes. As a last resort I removed large pieces of the duodenum subperitoneally, tying the common duct, the duct of Wirsung and the duct of Santorini just as they entered the muscular coat of the intestine. By thus avoiding all direct trauma to the pancreas a marked improvement took place in our results; but the experiment made a lasting impression of how very susceptible the gland is to injury, and of how fatal such injury is to the organism. It also stimulated our curiosity to know more of the gland and of the part played by it in disease of the upper abdomen.

In regard to the anatomy of the pancreas there are three important facts: (1) Its intimate relation to other structures, especially the duodenum and common bile duct. (2) Its very rich blood supply; being the most active of the digestive glands its bloodvessels are large and numerous. (3) The delicacy of its frame work. Its close relation to other structures and the delicacy of its frame work render it difficult of manipulation, while its abundant blood-supply suggests unusual activity of the secreting cells. Physiological and pathological investigation has demonstrated this to be the case.

Without further reference to the normal gland I would like to consider briefly the causes and manifestations of inflammatory processes affecting it, as well as their prevention and treatment. For convenience of description let us divide the disease into three varieties:

## ACUTE HEMORRHAGIC PANCREATITIS.

**Etiology.**—It occurs most commonly in adult life, and is more frequent in males than in females. Parturition, alcohol, and gallstones are the most common causes. Of these causes I would especially like to call your attention to that of gallstones, and will cite briefly two cases which came under my observation during the past few months, and which illustrate two ways by which calculi can and do produce pancreatitis.

The first was that of a young woman who was suffering from a severe attack of hepatic colic. On opening the abdomen numerous patches of fat necrosis were at once observed, a small quantity of blood stained fluid in the peritoneum, a gallbladder full of small stones, and a greatly swollen pancreas. There were no stones in the common duct nor in the ampulla of Vater. This I believe was a case of lymphatic extension. The gallbladder was aspirated, drawing off several ounces of pus, and over two hundred gallstones were removed. The gallbladder was drained and patient made an uneventful recovery. Incidentally I may say that this and other cases lead me to believe that the human subject will stand pancreatitis better than the dog.

The second case was that of a young man who was suddenly taken ill with all the symptoms of acute intestinal obstruction. He gave a history of having been operated on for gallstones some months previous to the present attack, but none were found. Before consent for operation could be obtained, and less than forty-eight hours from the onset of the attack, the patient died. At post mortem a small gallstone was found in the papilla, entering the duodenum and completely blocking the flow of bile into the intestine. Bile was found all along the duct of Wirsung; the pancreas was swollen, and there were numerous hemorrhages into its substance.

This I think was clearly a case of stone passing through the common duct into the ampulla of Vater and being too large to pass through the papilla into the duodenum. It will be remembered that the opening at the base of the ampulla is over twice as large as the opening into the duodenum. The bile being dammed back at this point readily found its way along the duct of Wirsung, and it has been shown experimentally that normal bile in the pancreatic ducts will produce acute hemorrhagic pancreatitis.

**Symptoms.** Acute pancreatitis should be suspected when a patient is suddenly seized with acute pain in the epigastrium, followed in a short time by vomiting and collapse, and in the course of twenty-four hours by a circumscribed swelling in the epigastrium,

though this last symptom is certainly absent in some cases, or the abdominal wall is so rigid that it is hard to elicit. Moynihan is inclined to attach importance to lividity of the skin, suffused face, cold and damp body surface, and blue lips. Many cases will only be diagnosed after the abdomen has been opened, as the symptoms produced by the disease are so similar to those caused by other serious acute conditions, e. g., perforating ulcer of the stomach or duodenum, acute intestinal obstruction, thrombosis of the superior mesenteric artery, that a provisional diagnosis only can be made.

In those cases of acute pancreatitis occurring with acute cholangitis I have never observed any symptom in itself suggestive of pancreatitis, but as a general thing the attack is a severe one.

When the abdomen is open the diagnosis is readily made. There is always some blood stained fluid in the peritoneum, patches of fat necrosis, and the pancreas itself will be soft and swollen.

## SUBACUTE PANCREATITIS.

There are some cases of pancreatitis where the infection is not so severe as that described above and where the process may go on to abscess or gangrene. The symptoms present here are less urgent than in the typically acute cases, but differ only in degree.

## CHRONIC PANCREATITIS.

While I have cited a case of acute pancreatitis due to the lodgment of a gallstone in the duodenal papilla, this and a stone in the lower part of the common duct are probably the most common causes of chronic pancreatitis. There are certainly other causes, e. g., pancreatic calculi, typhoid, alcohol, duodenal ulcer, tumor pressing on the duct from without—any one of these may be responsible for a chronic inflammation of the pancreas. My experience with the condition, so far as it has been confirmed on the operating table, has been confined to cases associated with gallstones, with possibly one case due to a duodenal ulcer.

**Pathology.**—Opie has described two forms of chronic pancreatitis: (a) Interlobular, in which deposits of fibrous tissue separate the lobules of the gland. (b) Interacinar, in which the fibrous tissue is found within the lobules. In this condition the Islands of Langerhans are also affected and consequently we have metabolic as well as digestive disturbances.

**Symptoms.**—In the milder grades the symptoms are often not sufficiently marked to render a diagnosis possible. The history may be exactly that of gallstones, or of biliary infection. Deaver reports cases presenting all the characteristics of biliary intermittent fever. Moynihan cites cases where he



has found a chronic pancreatitis when he had made a diagnosis of duodenal ulcer.

The following train of symptoms should lead us to strongly suspect chronic pancreatitis: (a) A sense of fullness in the epigastric region. (b) Pains radiating to the left side of the abdomen and chest. (c) Pale pultaceous stools. (d) Wasting, more or less rapid. Sometimes there is jaundice and sometimes diabetes. Cammidge's reaction requires a very experienced laboratory man, if the results are to be taken at all seriously, and even then I believe it is of doubtful value.

#### TREATMENT.

*Treatment of Acute Pancreatitis.* In this condition operation will usually be undertaken without a positive diagnosis. As soon as the peritoneum is opened the condition already described renders the diagnosis easy. The pancreas will be found engorged with blood, soft, and swollen. Expose the gland freely by tearing through the gastrohepatic omentum, make a number of small incisions into the gland, pack them with gauze, and have the end of each gauze strip come out through the incision. Examine the gallbladder and the ducts. If gallstones are present remove them, unless they are in the ampulla of Vater, in which case it is better to drain the gallbladder and remove the stone at another time, if it does not pass on into the duodenum. Then if the patient's condition will permit, make a second incision in the costo-vertebral angle, expose the posterior surface of the pancreas, make multiple incisions into the gland here and drain through the posterior incision also.

The results reported by Mikulicz and Moynihan, while still showing a high rate of mortality, are very much better than when no operation has been performed.

*Treatment of Subacute Pancreatitis.*—Make an incision between the ensiform cartilage and the umbilicus. Usually a deep seated mass can at once be felt in the epigastric region. Tear through the gastrohepatic omentum, locate the part of the pancreas most involved—usually there will be a well defined abscess—and carefully protect the peritoneum by a double layer of large abdominal cloths. Open the abscess and wipe away all the pus and slough that can be removed; sometimes large pieces of the pancreas will come away, but this according to Moynihan interferes neither with the immediate recovery of the patient, nor with his metabolism later on. Having localized the abscess through the anterior incision, some prefer to close the abdomen and make a second incision in the costo-vertebral angle, and drain through this incision. My experi-

ence is limited to one case; this was drained from the front and the patient made a good recovery.

*Treatment of Chronic Pancreatitis.*—This will necessarily vary with the cause. Stones in the pancreatic or common duct must be removed, gastric or duodenal ulcers treated by excision or gastroenterostomy as may seem best in a given case. Drainage of the ducts for a sufficient length of time to allow them to free themselves of infection is the all important part in the treatment. This, I think, can be best accomplished by doing a cholecystotomy. This operation drains the ducts to the surface, whereas if a cholecystenterostomy is performed the gallbladder may be constantly reinfected from the intestine, and if in addition to this a lateral anastomosis is done to lessen the probability of infection, the operation is unnecessarily prolonged and the possibility of reinfection still exists.

The only point is to keep the fistula open as long as possible. The earlier this treatment is instituted the better are the chances for permanent recovery. If sclerosis of the liver and pancreas has already taken place, the operation, though it may successfully free the ducts of infection, can never cure the cirrhosis which has developed in these organs.

### AN OPERATION FOR THE CLOSURE OF CLEFT PALATE BY GRADUAL PRESSURE.\*

By BERNARD F. SHEA, D.D.S., Brooklyn, N. Y.  
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True cleft palate is a congenital fissure in the roof of the mouth of variable extent. The so-called acquired cases differ therefrom in presenting an unequal ragged or incomplete cleft, such as would be produced by the destructive ulcerations of syphilis.

The extent of congenital cleft may vary from the slightest manifestation, that of a bifid uvula, to the grossest form of conjoined cleft palate and hare-lip, in which the fissure involves not only the velum palati and hard palate, but penetrates one or both sides of the alveolar arch and upper lip, with the presence of separate intermaxillary structures.

This paper, however, will not embrace the subject of hare-lip except incidentally.

It is remarkable, but a fact, nevertheless, that one may change the character of a person by correcting deformities of the face and jaws and I feel that nearly all of these deformities may be corrected. In my opinion, it is almost a crime to permit these patients to go on unrelieved, as is often done, when

\* Read before the annual meeting of the Homeopathic Society of the State of New York, February 14, 1912.

they may have the advantages of modern surgical and orthodontic treatment.

The orthodontists have shown us that the dental arch should be perfect and that the development of the mouth, the face, the nose, and the associated parts depends largely upon the regularity in this respect, and when undertaking to close a cleft palate by whatever means, we should keep in mind the perfect arch. But it is the writer's belief that when you come across a patient—and you do at times—who has a regular arch, or as nearly regular as it can be in such cases, with the premaxillary bones hanging on at the end of the nose and a bilateral cleft with a double hare-lip, it may be necessary to change the regularity of that arch and depend upon the orthodontist to do a little correcting later on; provided we have been fortunate enough to do the operation, even though we have found it necessary to contract the arch so that we may obtain flaps in order to keep the tissues in their normal position.

Lemonier, a French dentist, is credited with having been the first to suggest and successfully operate for the closure of fissures of the palate, his record having been published in 1776. He succeeded in closing a fissure in both the hard and soft palates by paring the edges of the cleft, approximating, and suturing. Eustache, in 1799, recommended the same procedure. Von Gräfe revived the operation in 1816, and it was modified by Roux in 1819. Warren, of Boston, in 1820, being ignorant of the efforts of the other surgeons, resorted successfully to a similar method, and after this time the operation became generally known.

Some of the operations now performed for cleft palate, as I understand them, are Langenbeck's, Fergusson's, Billroth's, Rotter's, Davis', Colles', T. Smith's, Lane's, G. V. I. Brown's and Brophy's.

The von Langenbeck method consists, first, in paring the edges of the cleft; second, in making an incision through the soft tissues covering the hard palate, close to the teeth, and lifting these tissues from the bone with a suitable periosteotome, sliding them over the fissure and uniting the periosteal surfaces with sutures.

Fergusson pares the edges of the cleft, then drills the bony palate from before backwards at short intervals, splits it with a chisel, and unites by silver wire sutures.

Billroth does a modified Langenbeck. Rotter transplants tissues. Davies-Colles' method is a flap operation. T. Smith closes a wide cleft in the inner palate by utilizing muco-periosteal flaps from the sides of the vomer.

Lane's method is a flap operation and is performed as early as possible after birth; his flaps are

extensive and leave large surfaces of bare bone, which heal very rapidly. It differs from some of the other flap operations in that it leaves the flap wrong side up, but very wide clefts may be closed by his method.

Brown does a flap operation, keeping the flaps in their normal position; that is, he claims that the periosteum should always be transferred in its normal position.

Brophy's operation consists of passing silver wires, No. 20, through the maxillary bones above the level of the palate, and if necessary through the nasal septum. He uses two wires, an anterior and posterior; these pass through lead plates which are moulded to fit the convexity of the buccal surfaces of the bones. The wires are drawn tight and twisted together over the lead plates until the cleft is completely closed, its margins having been scarified. He then sutures the soft palate, and in some cases has been compelled to use bone crushing forceps to get the margins in apposition.

In a discussion on the treatment of cleft palate, at the May meeting of the Royal Society of Medicine (*Edinburgh Medical Journal*, September, 1911), there developed a sharp conflict of opinion as to the age at which to operate, and as to the general acceptance of Langenbeck's operation in preference to those devised by Lane and Brophy. Lane stated that he operated as soon after birth as possible—first, in severe cases, to save life, and, second, to obtain sufficient air pressure during respiration in the naso-pharynx to enable it and the surrounding bones fully to develop as they do in a normal child. He said that only a fraction of the severe cases survived to come to operation at four to six years. The more serious the case, the earlier in life it should be operated on. In the first few days of life these babies were at their best. Many clefts could only be closed early, as later the encroachment of the teeth on the gums deprived the flap of about two-thirds of its breadth. The mortality of 5.9 per cent. with his "turn-over flap" operation was surprisingly small, considering the desperate state of many of the children on admission.

The strongest opponents of early operation were John Ulrich, of Copenhagen, and James Berry. The former stated that he had found it more difficult to obtain healing at the age of two or under, and in future he would prefer to postpone operation until the age of three years. Berry said he considered early operation the very reverse of life-saving. If emaciated children with a wide cleft were properly nursed by a mother or nurse, he did not find that many of them died. The period of choice for surgical intervention in the difficult cases was at two

years, but there were many children with narrow clefts which could be advantageously operated on even in the first year of life. In his series of 144 no death had occurred. Several of the speakers pointed to the absence of statistics showing that the mortality in children with cleft palate not operated on was greater than in ordinary children of the same class.

The chief criticisms directed against Lane's "turn-over flap" operation were: That the procedure was dangerous in young infants; that the

severe cases operation was followed by poor power of speaking and in some the palate had required to be again split to apply prosthesis. On the other hand, many adults with a wide cleft spoke very well, almost excellently, with a properly fitting prosthesis. Out of fifty-six cases, he thought that ten would have done as well without any operation.

Sixty patients were shown at the meeting and the consensus of opinion was that the results as regards speech were very disappointing. G. E. Waugh dwelt particularly on this aspect. He said

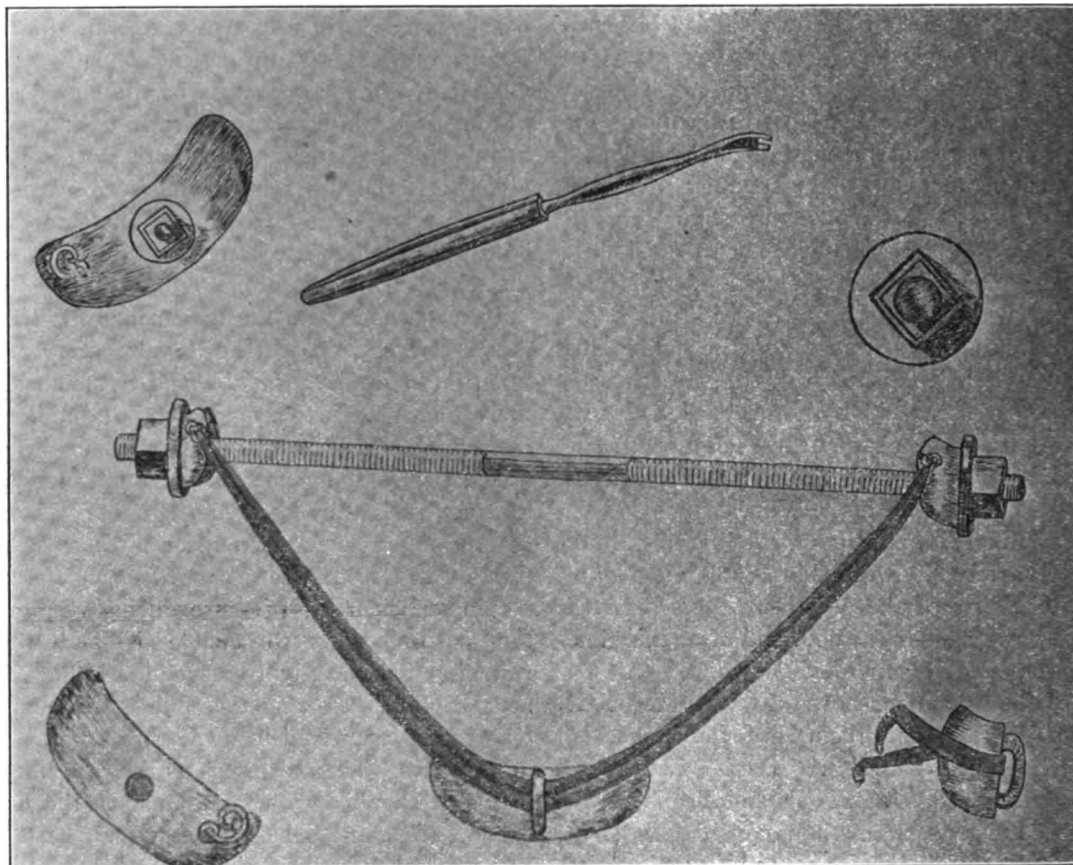


FIG. 1. Compression bar, gaskets and nuts, silver plates.

soft palate tended to become thin and cicatricial and the power of articulation poor; that the palate might be too stiff; that there was much scar tissue, the palate was crooked, and when children spoke there was a drawing up of one side; that atrophy of the flap occasionally occurred, sometimes so extensively that further intervention was impossible.

Brophy's operation was condemned for its severity by Ulrich and Berry. Ulrich also said that after Lane's and Brophy's operations the teeth were often almost ruined.

The question of prosthesis treatment in wide clefts was discussed by Ulrich. In most of the

that only one of the patients shown did not betray by his speech that he had been the victim of cleft palate. It did not matter whether the operation was done in infancy or slightly later, or whether the original defect was slight or grave. Even if the structure and mobility of the palate were perfect, the child might speak as if it had no roof to its mouth and no mobile palate. In all probability there were two lesions to consider, one in the function of the speech centers, and one in the structure of the palate, and they were associated but not interdependent. Surgeons could claim no more than that operation would allow of breathing

through the normal passages, and of swallowing in a fairly normal manner.

The operation which the writer desires to submit is original to the best of his knowledge, and in his opinion may be used any time during the first year, though preferably during the first six months. Undoubtedly it is wise surgery to operate early on suitable cases for the following reasons:

1. There is less nervous shock.
2. The bones are softer.
3. The muscles of the palate are given an op-

portunity to develop instead of atrophy. It should be performed before the closure of the hare-lip, for the reason that the presence of the latter gives more room in which to work, and the reduction of the premaxillary bones to their normal position affords us a better opportunity of producing expression when closing the fissure or fissures in the lip.

It is well before operating to see that the patient's general health is good and that no local conditions exist which might interfere with the repair. If adenoids are present they should be removed.

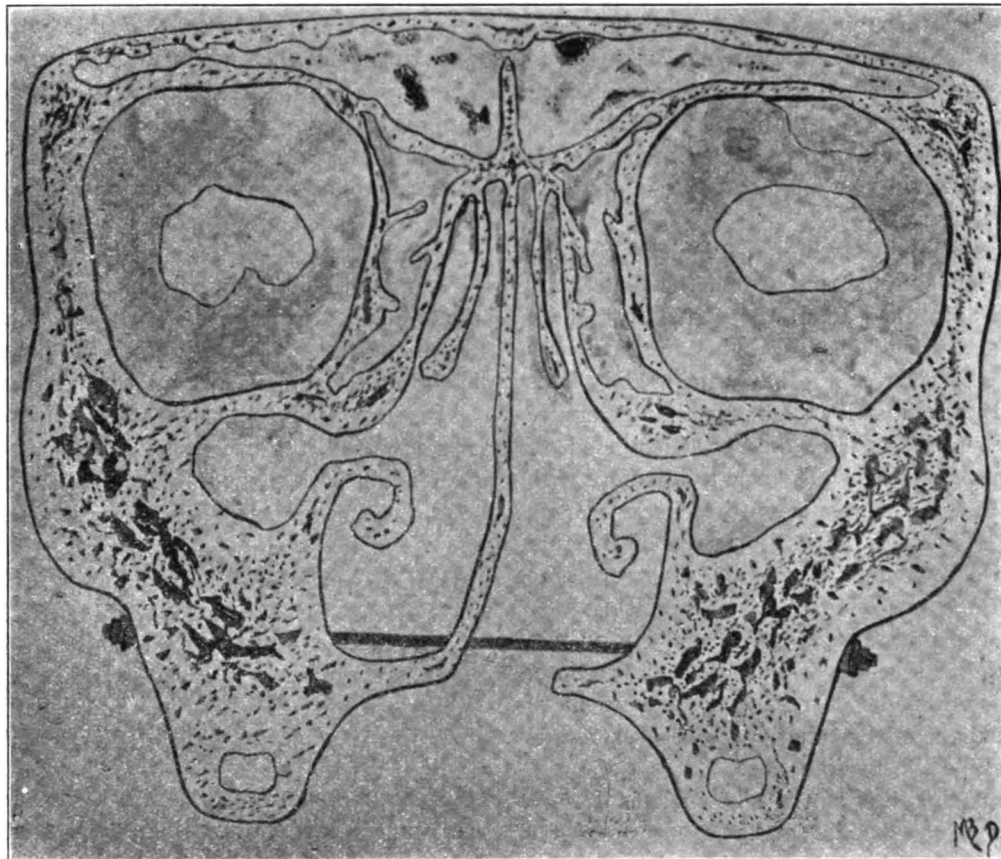


FIG. 2. Compression bar in position.

portunity to develop instead of atrophy. It facilitates feeding, breathing and phonation. In fact, the general vigor of the patient demands early intervention.

Lane has shown how imperfect oxygenation and consequent infection of the nasal and pharyngeal respiratory apparatus result from obstructions in and malformations of the nasal canals, with consequent deterioration of health.

It is said that Brophy has operated on over 200 cases of cleft palate in babies younger than six months without a single death, yet the procedure is not without risk. The operation on the cleft palate

For a few days prior to operation it is well to cleanse the mouth and nasal fossæ with a mild antiseptic solution.

It is the writer's custom to select a specialist in anesthesia, and when possible have him take charge prior to operation and select the anesthetic and method which, in his judgment, is best suited to the case. A thorough understanding between anesthesiologist and surgeon facilitates operation.

The patient is anesthetized and placed in the Trendelenburg position. A stout thread is passed through the end of the tongue as a traction suture. A bone needle is threaded with strong silk, the

cheek raised, and the needle passed through the superior maxilla from without inwards, at a point just under the malar process, and high enough to be above the palate. When the needle appears in the cleft the thread which it carries is picked up with a hemostat or hook and the needle then withdrawn. Through a corresponding part of the opposite bone a loop of thread is passed in the same manner. This second loop of thread is tied to the first and the latter pulled out, carrying with it the former.

We now have a loop of thread passing through both superior maxillary bones above the palate and when necessary through the nasal septum. This thread is for the purpose of drawing the free end of the compression bar through the bones, which we now do. This bar is made of gold and platinum wire of about 18 gauge, threaded from both ends towards the center. The length of bar is approximated to the case.

The bar is held in position while lead gaskets, silver plates and nuts are adjusted, the plates and gaskets being trimmed to fit the convexity of the buccal surfaces of the bones. The nuts are now screwed on the ends of the bar outside the plates with a small wrench until a slight degree of pressure exists. The surplus ends of the bar are snipped off whenever they protrude sufficiently to interfere with the tissues on the inner side of the cheek. If we are afraid of any irritation or laceration from this cause we may mould gutta-percha over these ends.

The nuts are turned up a little each day or two so that there will be slight but gradual pressure. In doing so it may be necessary to take up more on one side than on the other so as to preserve as near as possible the median line.

On the anterior end of the silver plates I have soldered two small hooks for the purpose of reducing the premaxillary bones when they are involved. This is done by pressing a rubber band through a small ring which has been soldered to a piece of silver suitably formed to fit the convexity of the premaxillary bones, and the free ends of the rubber band are attached or slipped over the hooks on the anterior portion of the buccal silver plates. I depend upon the pressure from the elastic band to gradually reduce the premaxillary bones. It is very often necessary to cut a "V" from the vomer in order to get the premaxillary bones in position.

This is all that is done at the first operation, and will occupy about one-half hour.

The length of time required to bring the margins of the cleft in close enough apposition for scarifying and suturing will depend upon the age of the

child and the amount of resistance offered by the osseous tissue—approximately two weeks.

The nuts used on the compression bar are of gold made with a fair sized flange for the purpose of pressure distribution. When we have the margins sufficiently close to scarify and suture, the patient is again anesthetized and the closure of the cleft is completed, leaving in position the compression bar to relieve tension until we have union.

Special attention should be given to the nasal fossæ so that there will be no crowding of parts. This method of gradually closing the cleft palate gives the operator a chance to decide by observation or measurement the amount of nasal stenosis likely to be caused, and if he sees that by complete closure of the cleft he is crowding the nasal fossæ, he may stop at that point and do a Brown, Langenbeck, Lane, or any of the flap operations. It will take at least three operations to complete the treatment by this method.

The compression bar is flexible, and an anesthetic is not required to remove it.

Do not close the hare-lip until the palate is completely closed and the patient has recovered.

After-treatment:—Absolute cleanliness of the parts involved, the use of stimulants, if necessary, and feeding with a spoon.

324 Stuyvesant Avenue.

### **RADICAL TREATMENT OF TUBERCULAR ENTERITIS, WITH REPORT OF A CASE.**

By GEORGE S. FOSTER, M.D., Manchester, N. H.

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*Tubercular enteritis* is a disease demanding surgical interference rather than strict medical treatment. The writer realizes that this is a broad statement to make at this time, yet it is one which will be proven in the near future.

The medical man has at his command tuberculin in its various forms, one or two of the later mercurial salts administered by mouth or hypodermically, the bacillus *Bulgaricus*, proper diet, hygiene and rest. All these must be accepted as very essential adjuvants. He must, however, go further and must co-operate with the surgeon before it can be said that everything possible has been done for the patient in question.

The day is now at hand when medical and surgical practitioners should co-operate if selected cases are to be given the benefit of the doubt. All cases of question demand this benefit if the work

is to be of the highest standard. We must be charitable in all of our actions and consider life valuable beyond remuneration.

*Physiologically* the alimentary canal is exceedingly active. In the small intestine we have the peristaltic wave running progressively from the pylorus to the ileocecal valve. At the same time there are present the rhythmical circular contractions at isolated points where large masses of food have gathered while being digested. In the first part of the large bowel there is the peristaltic wave, which at times reverses itself. From the splenic flexure to the sigmoid this wave is always progressive, never retrogressive. Food undergoes most profound changes in the intestines, and here the products of digestion are mainly absorbed. The greater part of this digestive process is completed by the time the ileocecal valve is reached. Three juices, namely, the pancreatic juice, bile and succus entericus, are poured in large amounts into the small intestines.

All this cannot be said of the large intestine, as we are here dealing with another medium. Large amounts of mucus are secreted in the colon, but no distinctive enzyme. The contents are alkaline in reaction, thus being favorable for the growth of bacteria. These multiply very rapidly, and as large quantities of water are absorbed into the lymphatics and blood stream great numbers of organisms necessarily follow along.

*Histologically* the mucous membrane of the small intestine is characterized by the presence of villi resting upon distinct folds. These villi vary in shape and size, being columnar in the jejunum and club-shaped in the ileum. They are paved with cells of a high columnar variety, with their free surfaces covered by wide, striated, cuticular borders.

When the cecum is reached the villi disappear, while the honeycomb folds remain. Solitary lymph follicles appear, obliterating many of the glands of Lieberkühn. At the anus the mucous membrane of the rectum forms a narrow ring devoid of glands, covered by stratified pavement epithelium, and terminating in the skin in an irregular line.

*Pathologically* we have, first, as the result of the development of the tubercle bacilli, a *tissue-degeneration* in which the cells, as well as the connective-tissue ground substance, over a larger or smaller area are destroyed. To this degenerative process there is added, on the one hand, an inflammatory exudation—that is, *emigration of leucocytes*—and, on the other, a *proliferation of the tissue-cells remaining intact* within the affected area. This leads to the formation of *epithelioid cells*, *giant cells* and *lymphoid cells*, which go to make up a tubercle.

Thus this formation progresses, the tubercles at first being discrete, but always tending to become confluent.

Few if any of these cases of intestinal tuberculosis have this site as the primary source. By far the greater majority are in the incipient stage of pulmonary phthisis, the apex of the upper lobe of the left lung seeming to be most frequently the starting point. By metastasis the infection spreads to some other part and begins development anew. Occasionally the disease may be primary in the intestine, with the blood stream as the transmitting medium.

The large intestine being the sewerage outlet very often naturally fortifies itself the least. Where there is a grouping of innumerable varieties of detrimental organisms, for a short time at least, there must be a lowering of resistance of the parts involved. This lowering is sooner or later followed by an increased strengthening, yet the intestinal field is so fertile for the rapid growth of bacteria that these multiply in a ratio to the increase of resistance, if not many times more.

With such a fertile soil to deal with it would seem the most feasible plan to reduce the cultivative power of the intestinal contents, more especially of the large bowel. Metchnikoff has shown us that much more harmful material is absorbed from the large intestine than from any other part of the alimentary tract. This great man has demonstrated that a high degree of fermentation and putrefaction is always present in the same portion of our bodies. Metchnikoff goes further and says that we could live longer if part of the colon was removed, thereby diminishing the capacity of this waste basket.

The tubercle bacillus seems to be particularly fond of lung tissue, yet we know it cannot be progressive in this part unless by improper methods of living the alveolar cells are degenerated and the pulmonary circulation reduced. If the alveolar cells are freely supplied with fresh air, the general circulation kept in good order, and a proper environment enjoyed, the onslaught of this dread organism can be retarded.

If such circumstances will apply to lung tissue, why will not the same methods improve the intestine? It is to answer this question that I report a case.

The Mayos have most ably demonstrated that tubercular peritonitis comes from one or a combination of three sources, namely, the oviducts, appendix, or cecum. Since the last two named are in the majority, we can easily concentrate our thoughts upon the intestinal tract.



Conceding that the Mayos are right in their statement, we can surely prevent the spread of a tubercular lesion in the appendix or cecum by removing the former and administering local treatment to the latter. "Clean out, clean up and keep clean," is an old adage which most strongly applies to this condition.

Only a few of the technical principles will be covered in this paper, as generalities are the frequent reading of all surgeons.

#### TECHNIC.

The main idea in operating upon a case of tubercular enteritis is to make a false anus in the right inguinal region opposite the ileocecal angle. The incision is of the muscle-splitting variety. The peritoneum should be carefully examined. After opening the peritoneal cavity, the lower half of the ileum should be drawn out and carefully examined to detect any free fluid that may be present; next, the first half of the cecum, together with the appendix, should be inspected. Any studding of these parts with "sago grain" granulations, tending to become confluent and so characteristic of tubercular infection, should be looked for. If any of these are noted, of course the peritoneum has become involved.

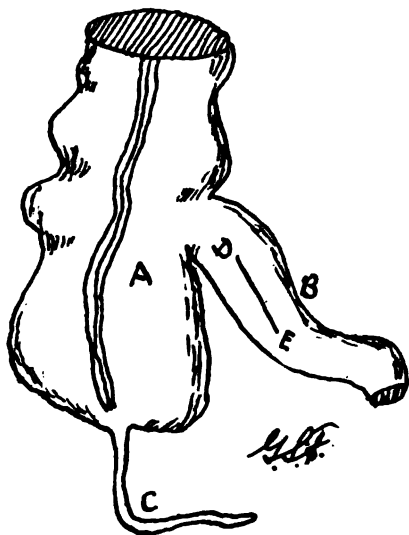


FIG. 1. Diagram to show proper position for the incision in the ileum. A, Cecum. B, Ileum. C, Appendix. D, E, Incision in ileum.

As to the appendix, we will invariably find the ischemic, segmentally constricted variety, described in the April (1909) issue of the *Bulletin*. The inflammation of the appendix, being of middle age, would be of the type sometimes, though wrongly, termed sub-acute.

The appendix should be removed at this time. Before amputating, the base should be crushed and tied with a fine catgut ligature. Just above this

ligature the lumen should again be shut off with the crusher and the appendix separated from its base by cutting between these two points. If extrinsic parts are protected by moist, flat sponges, no soiling will occur. The sponge should then be removed and the stump inverted and closed in by a Connell suture. It is also important to fortify all points by taking a purse-string suture outside of all this. Good toilet during the appendectomy is of the utmost importance.

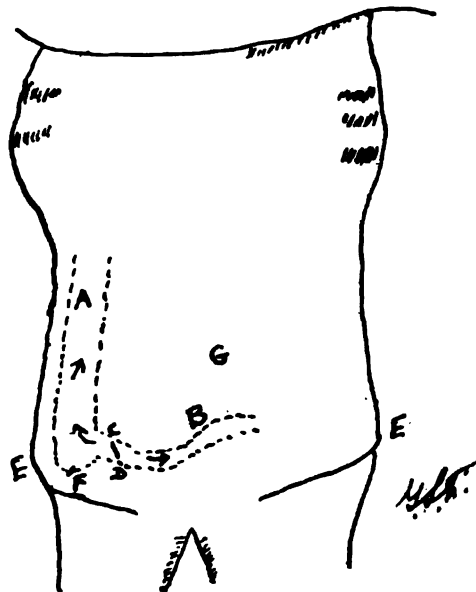


FIG. 2. Diagram to illustrate direction of skin incision and how the ileum should be brought out through the same. A, Cecum. B, Ileum. C, D, Skin Incision. E, F, Antero superior iliac spine. F, Stump of appendix before inversion. G, Umbilicus. Arrows indicate direction in which the sterile water will go while irrigating. By this method it is seen how easily the bowel contents will pass to the cecum after the false opening is closed, leaving no obstruction. While the false passage is open, the bowel contents come out at the point of least resistance, namely, the false anus.

Following the appendectomy, the lower two inches of the ileum should be drawn out through the incision and turned upon its axis, so that that portion nearest the ileocecal angle will come at the upper angle of the incision, leaving the free part of the ileum to drop to its lower end. The remainder of the technic is carried out according to Cripp's method.

The most important technical step is to see that the ileum is properly placed in relation to the direction of the incision. This is so for three reasons:

*First*, because irrigation of the small intestine can be done without disturbing the large bowel or mixing its contents with the small bowel.

*Second*, because the large intestine can be thoroughly cleansed by rectal enemata, allowing any overflow to come out through the false opening without entering the small bowel.



*Third*, because when the proper time arrives to close up the false anus, the bowel contents will pass by the ileocecal angle without demanding increased peristalsis in the ileum or massing of its contents.

For two days following the operation the intestinal tract is left undisturbed, merely changing the wound dressing frequently enough to keep the part clean. The surrounding skin is gently bathed in a 1-3000 bichloride solution and protected by sterile vaseline. Ochsner's method of postoperative care is followed with some modifications.

At the end of forty-eight hours irrigation is begun. Two rectal enemas, each consisting of two quarts of sterile water, temperature 110 degrees F., are given daily, one in the morning and the other in the evening. By these enemas the colon is cleaned out thoroughly, the water escaping by both the false and the true anus. Once daily the small intestine is carefully washed out through the false opening, using plenty of warm, sterile water. A short glass pipet is employed for the latter irrigation, and the water is allowed to run in and out rather freely.

At the end of four days, predigested liquids are given and the diet gradually strengthened in the usual way. Head rest, chair and blanket, clothes and "up and about," are ordered at the same intervals as for the usual laparotomy.

#### CASE REPORT.

Miss C., American, aged twenty-one years, no special vocation.

**Family History:** An own aunt died of pulmonary tuberculosis; father died of "complication of diseases;" mother, brothers and sisters well and strong.

**Past History:** As a child she was always considered well and strong. Usual children's diseases.

**Present Illness:** Five months ago she began to lose strength and weight. The loss of strength had been more marked during the past month, while alternating diarrhea and constipation had been very noticeable. At irregular intermissions of from one to three days she would have "peculiar nervous spells," during which she was apparently oblivious of all that transpired and did not recognize her family. These spells would last from a few moments to an hour or so. While in this condition she would roll her eyes and occasionally groan. She slept poorly. Appetite was poor. Micturition normal. Patient did not cough, but had attacks of dyspnea and a feeling of suffocation. Off and on there had been some abdominal pains, sometimes dull in character and at other times sharp and

lancinating, but not radiating. This pain seemed to be more pronounced in the right pelvic fossa, but was not aggravated by the menses. Menstruation was regular, somewhat painful, with the flow scanty and pale in color.

I was first called to see this patient at 1 a. m., September 8, 1909. I found her in a semi-comatose state, with respirations deep and labored. The skin was of good color, the cheeks flushed, but the hands and feet cold.

**Physical Examination:** The patient was poorly nourished, but fairly well developed. The forehead was knitted in a frown and the features somewhat pinched. Eyes, ears, nose and throat negative. Lungs: respiratory excursion equal on both sides; no dullness on percussion; auscultation revealed fine crepitant rales at the apex of the left lung. Heart: negative. *Abdomen* flat and flaccid; deep pressure at McBurney's point and into the right pelvic fossa would cause the patient to flex her thighs upon her trunk, at the same time uttering a low groan. Tympany was not increased. Liver, spleen and kidneys not felt and apparently no increase in hepatic dullness. Reflexes, normal. No enlarged glands or ascites. Axillary temperature normal.

I left a placebo to be administered at regular intervals, and instructed the members of the household to give half an ounce of brandy in hot water every three hours, letting it run down the throat very slowly by using a medicine dropper. Hot fomentations were applied to the abdomen. A brief explanation of the probable trouble was volunteered with qualifications. They were told to save a specimen of urine.

The following day I again made a visit and found the patient conscious and talkative. Examination at this time revealed nothing additional. Examination of the urine was negative. An operation was advised, and consent having been given the patient was removed to the Notre Dame Hospital. On September 11, 1909, I performed the operation described above. During convalescence such stimulants as strychnin, arsenous acid and ferrous carbonate were given in addition to hygiene, diet, etc.

The patient left the hospital in four weeks much improved, going to the country for a time. Instructions were given as to care of false anus and proper mode of living. During the next two weeks I visited her once and found her general condition rapidly improving.

On October 29, 1909, she again entered the Notre Dame Hospital and I closed the false opening. Recovery was uneventful, except for a slight break-

ing down of the wound on the eighth day. This was kept clean, and with the aid of sterile balsam of Peru it granulated over, leaving a firm cicatrix. She left the hospital November 19, 1909, again going to the country to take the fresh air course. At this time she was gaining very rapidly in strength and weight. No nervous symptoms have been present since the first week following the first operation. Her general appearance and disposition have greatly improved, with every indication for a complete return to robust health. It might be mentioned in passing that a pathological section of the appendix confirmed tubercular involvement.

#### **RESUME.**

In making the muscle-splitting incision at the primary operation care should be exercised to have the opening long enough to prevent any extreme muscular contraction, thus retarding the emptying of the small bowel.

Many minor routine points of importance during the post-operative treatment have purposely been omitted because of the fact that each case should be a law unto itself in this regard.

The writer realizes that any amount of experience gained from a single case would not justify too broad a statement in any direction. At the same time the results herein shown must of necessity warrant due consideration and careful thought in all similar cases by those interested in the higher, helpful motives of surgery.

967 Elm Street.

### **ULCERS OF THE LEG.**

#### **A Successful Line of Treatment.**

By **JULIUS T. ROSE, M.D., Brooklyn, N. Y.**

In discussing the old subject of ulcer of the leg no attempt will be made to cover it exhaustively or very scientifically, nor to refer to an extensive bibliography, but rather to view this condition practically with especial regard to its successful treatment.

Let us consider as an ulcer of the leg any area of the tissues of the leg which is or ought to be granulating. It may be caused by trauma, varicose veins, burns, by operation, or by necrosis following infection from within or from without, specific or non-specific, acute or chronic.

The diagnosis of such an ulcer is easy, but the recognition of its cause is much harder. One should always bear in mind the possibility of its being tubercular, syphilitic or malignant, especially if it tends to chronicity. Any one or more of these causes may be present with disease of the bone. In

this class of cases have a Wassermann test made, or a section cut out under cocain and examined under the microscope, or both, and much knowledge will be gained as to the cause and the proper line of treatment. It should be remembered that syphilitic ulcers have been declared malignant by the microscopist; so try a Wassermann reaction, give salvarsan, mercury and potassium iodide before resorting to amputation.

But it is the ordinary simple ulcer that you are especially interested in, the one seen so frequently on the lower half of the leg. It may be associated with varicose veins, lymphatic obstruction, or bone disease, any one, two or three of them, or none of them. The leg may be fat or thin, muscular and firm, or weak and flabby, long or short, shaped like an Indian club or like a fence rail, but there the ulcer is, usually on the antero-lateral surface of the lower half of the limb, most frequently on the inner side. It may be large or small, superficial or deep, foul and sloughing or clean and red, painful or not. Usually pain is in inverse ratio to its size, especially when situated near the ankle. You have all seen them, lots of them. What causes them?

The most frequent cause is interference with the return flow of blood in the veins. Usually varicose veins are present, but it is a strange fact that some patients with very large and dilated veins have no ulcers, while others with small varicose veins or none at all seemingly present extensive ulceration. This varicose condition is brought about by the action of gravity, especially in those who stand still a great deal, thus losing the alternate contracting and relaxing action of the muscles in walking which presses the column of blood onward. The internal saphenous vein which is the one mainly at fault has only two to six valves throughout its entire length, and when dilatation begins to take place these soon become incompetent and the circulation in both trunk and branches receives a very serious setback.

Other causes of obstruction and varicosity are pregnancy, the pressure of abdominal tumors, though in some cases of very large tumors the veins are not affected and in pregnancy they are often involved before the uterus is large enough to cause any pressure, diseases of the heart, especially valvular lesions, periostitis, operations on the leg or incisions for more or less extensive cellulitis of the lower extremity, and the constricting effects of scar tissue from whatever cause. Varicose veins are liable to traumatic rupture, periphlebitis, phlebitis thrombosis, or suppurative thrombo-phlebitis, and these conditions may be forerunners of ulcer.

Almost as important in the causation of ulcers of the leg and always associated with obstruction to venous flow is interference with the lymphatics. The lymphatic is a direct outgrowth of the venous system, but while the superficial veins have many anastomosing branches with the deep ones, the lymphatics of the skin and subcutaneous tissue of the foot and leg extend to the groin without communicating with those deeper down, excepting those accompanying the external saphenous vein. Thus extensive removal of inguinal glands, or incisions for cellulitis along the thigh or leg, especially cross incisions, cause lymphatic edema and an unhealthy state of the tissues, oftentimes resulting in ulceration. So venous and lymphatic obstruction produces edema of the leg. The tissue spaces are dilated, the connective tissue fibrillæ are separated, and the cells degenerate and contain vacuoles. The nutrition of the skin is markedly interfered with and its resistance to infection altered. The increased amount of lymph in the tissues may partake of the nature of a transudate, the edema of stagnation, or, as is usual in these cases, there is a more or less active inflammation with the production of new connective tissue, causing a hard edema which does not pit on pressure, while the skin is markedly reddened and thickened. Thus is the leg prepared for the formation of ulcer. All that is needed is the match to start the conflagration. Eczema usually is present with severe itching, often leading to scratching, abrasion, infection, cellulitis, necrosis and ulceration.

Ulcers can originate in various other ways, but in almost all cases result directly or indirectly from the impairment of the venous or lymphatic circulation.

Prevention is better than a cure in cases of ulcers of the leg. Aside from those which are produced by trauma, with or without complicating circulatory disturbances, it is possible to prevent their formation if proper treatment is instituted at the first sign of trouble. As faulty circulation is concerned in their causation, we must look to it in applying treatment, and especially to the local circulation. We should attempt to remove the causes of obstruction by operation or otherwise where possible. Give tonics for the blood, nerves and muscles. Build up the general health with proper food, plenty of fresh air, exercise, and a fair amount of rest in bed, though the local treatment is the most important.

If the ulcer and surrounding tissues are inflamed, reddened, throbbing, and painful, apply dressings wet with red wash, solution of aluminum acetate, lysol or creolin, and direct the patient to soak foot

and leg every three hours for fifteen minutes in warm water as hot as can be borne, and then a little hotter. Do this for twenty-four to forty-eight hours until the infection is controlled. After being soaked the leg is to be kept elevated and surrounded with abundant wet dressings. This will restore the ulcer to the general type. It required a special course of treatment, and having received this, it will probably present like many others a dry sloughing base and thick, indurated edges, with foul discharge, or it may have none of these characteristics, but rather be covered with fine red granulations, fairly firm, or with small or large, easily bleeding granulations. Whether there are granulations or not, if the base is dry, foul or sloughing, without active inflammation, shake over the ulcer a copious layer of powdered naphtholin and drop on this a small piece of diachylon ointment, and then do the most important thing of all. Strap the leg with adhesive plaster, zinc oxide plaster being the best for this purpose. Strapping the leg will cure any of these ulcers alone, but stimulants, astringents and other measures aid to some extent, though relatively little.

If the ulcer is large much time may be saved and a better result obtained by placing a skin graft over the granulations when they are in proper condition, and strapping as before. These grafts may be removed with a sharp razor from the upper part of the leg without giving an anesthetic, as the pain is not excessive.\* If the base of the ulcer is made up of scar tissue it should be excised in severe intractable cases. Cross hatching the edges and base with a scalpel is generally sufficient. The astringent effect of naphtholin is sufficient after the strapping to prevent any exuberance of granulations. When the new granulations are level or nearly so to the surrounding skin, use boric acid ointment.

Now, how to strap the leg. Everyone will probably work out a method somewhat different from that of any one else. You will in time learn to estimate the probable amount of tension to put on the straps, and be able to apply this uniformly to each in succession, and to judge how much tension should be employed in different cases; also to lay the strap flat on the skin which means changing the slant to correspond to the shape of the leg as you work upward from heel to knee. You will notice that if you use wide straps it is much harder to place them flat; in general, therefore, they should not be wider than one and a half inches, although about the ankle and heel you may need them narrower. The straps should vary in length, but should

\* For fuller directions on skin grafting without anesthesia, see author's article in Medical Record, November 16, 1907.

be long enough to go around once and a half, and each should overlap the next lower one, one-third or more. This varies according to the portion of the leg to be strapped.

The foot should be held at right angles to the leg while strapping the ankle. Different legs require a different degree of tension of the strap. In general, the larger the leg and the more edematous it is, the greater the tension. No bandage is needed to cover this plaster casing of the leg. The dressing may be left on from two to thirty days according to the amount of tension used, the degree of pain present, the reaction of the skin to the plaster, and especially the reduction in size of the edematous leg. It may be removed from below upward with bandage scissors, being careful to keep the blades at right angles to the skin when cutting.

This adhesive plaster dressing supports and evenly compresses both veins and lymphatics, hinders the development of edema from the very first application and later entirely prevents it, aids the action of the muscles by forcing onward and upward the current of blood and lymph, drives a large amount of blood into the deeper veins, which, being usually less dilated, have competent valves, and promotes the flow of lymph in the tissues. Thus the affected structures begin to improve in nutrition and function at once following its application, and the elastic tissue in the skin and vessels tends to regain its normal tone. The ulcer starts to heal, sloughs separate, granulations form rapidly and fill up the base, epithelium begins to move out from the skin edges, and in a longer or shorter time the process of repair is complete. In severe cases, however, the dressing will need to be kept up some time after healing has taken place. Later elastic stockings or stockinette bandages may be advisable, but in my cases all kinds of pressure dressings can be discarded. Should the leg become painful, tender, or edematous, support should at once be given, thus preventing the formation of another ulcer.

Case 1. A. McN., aged sixty-five years, came to the Brooklyn Hospital Dispensary in September, 1909. His right leg was nearly twice its normal size. He was sent to the hospital October 2nd and returned to the dispensary October 14th. About three-fourths of the lower half of the leg was ulcerated; there was a very foul discharge. Adhesive straps were applied October 14th, 16th, 18th and 21st. Three large areas were skin grafted October 23rd, the grafts being taken from the upper portion of the leg without resort to anesthesia. Three days later the dressing was removed. The skin grafts had all taken, and three other areas were grafted

The adhesive strapping was not used in this case to cover the skin grafts, but the dressing was briefly as follows:

The grafts were covered with silver leaf, and silk protective tissue in one-half inch strips was laid in a lattice work over this. Then two or three thicknesses of gauze moistened in salt solution and a gauze bandage also wet in this solution were applied firmly over the leg from ankle to knee. This when dry gave considerable support to the circulation of the leg and held the grafts in position. A considerable quantity of fluffy gauze was placed all about the leg over this dressing and an outer bandage was applied loosely to hold it in place.

November 6th, adhesive plaster was again resorted to and thereafter continued at increasing intervals. One small ulcer remained unhealed at the end of two months. This probably had considerable scar tissue in its base, and would have healed very quickly if this had been excised, but it finally closed up after the use of the strapping. There had been a history of ulcer extending over more than twenty years.

Case 2. K., aged twenty-four, several years ago burned his leg severely. Very little skin was to be found on the lower half of his leg. In the latter part of 1909 he came to the Brooklyn Hospital Dispensary for treatment. The leg was infected, painful, throbbing. Temperature 103. He was sent into the hospital. The leg was opened up very extensively in order to obtain good drainage and a larger granulating area later for skin grafting. The drainage was a success, but it seemed impossible to stimulate granulations, even after he had been kept in bed for a long period and received the best of treatment.

After three months in the hospital he returned to the dispensary. His leg had not been strapped and it needed it. Over one-half of the lower part of the leg was bare of skin. The floor of the ulceration looked yellowish-white like fascia; there seemed to be no attempt at healing; no granulations at all. There was a very copious discharge; the leg, ankle and foot were edematous. Two formerly ulcerated areas, which had been healed by grafting in the hospital in the latter part of 1905, extended down into the ulceration and were nearly surrounded thereby. The fact that these areas did not break down is of the greatest interest; the ulceration stopped short at their edges.

He was strapped every other day in the manner I have described, from ankle to knee. Diachylon ointment was used plentifully. This would melt

and mix with the copious secretions, so that a cupful of this mixture would run out when the dressing was removed. Granulations began to show themselves after the first dressing. Fifty per cent. solution of argyrol was used at times to paint over the granulations when they appeared. It required three weeks to obtain a decent area of granulation. Boric acid ointment was then used under the strapping, and at the next dressing an area the size of two silver dollars, irregular in shape, was grafted and silver leaf applied. Then straps were applied as before. Two days later the grafts were found healthy and vigorous. This method was continued until after three months' time his leg was entirely healed.

Cases of all kinds could be reported. One was that of a jolly, young colored man with ulcerations on one of his legs like a dry trunk and no varicose veins. He weighs three hundred and sixty pounds. He has been strapped continually, with as great tension as could be applied, for one year. His ulcers have entirely healed, but he still needs the strapping which is used now from four to eight weeks at a time.

Another patient is an old lady, pale, soft and flabby, with varicose veins of a moderate degree, who has a small painful ulcer just below and behind the internal malleolus. This ulcer is rapidly healing under the use of strapping which has to be applied gently, evenly, and with only slight tension, from ankle to knee. To strap just about the ankle would not support the circulation of the leg, and hence would fail to heal the ulcer.

Another case is that of a middle-aged man, apparently of good family, well educated and of robust appearance, with a leg deeply stained as a result of previous inflammations about ulcers. He has graduated from the adhesive plaster dressing to the stockinette bandage. He has been confined to bed from ulcers of the leg in several hospitals, and is familiar with the treatment of many different surgeons for this condition, from iodoform powder, which poisons him, to operations for varicose veins which he foolishly refuses. But from the time that ambulatory treatment by strapping was first applied his wanderings have ceased, and he comes at long intervals and quotes Shakespeare with a happy smile at every turn of the sticky strap or the smooth, even pressure of the stockinette bandage. In all cases there is some discomfort or pain, but a good steady advance toward a healed ulcer and a healthy leg.

128 Halsey Street.

## SOME CASES OF CATARACT.

By EARLE CONNER, M.D., New York.

A cataract is an opacity of the crystalline lens or of its capsule. Cataracts may be congenital, acquired, partial, stationary or progressive. They are furthermore primary or secondary. The commonest forms of cataracts include:

First. Partial stationary cataracts, capsular, anterior polar, posterior polar, circumscribed opacities in the lens itself, viz.: (a) small nuclear opacity, (b) spindle-shaped or fusiform opacity, (c) punctate cataracts, (d) perinuclear, zonular or laminar cataracts.

Second. Progressive cataracts: (a) Nuclear or cortical, (b) incipient, (c) intermescent, (d) mature (e) hypermature, (f) cataracts adherent to the iris or ciliary body, (g) traumatic cataract.

A cataract may be hard or soft and this can be told as a rule by the color of the opaque lens; thus all light colored cataracts are soft and all dark colored ones are hard. Cataracts were so called by the the ancients because they believed them to be something which flowed down from above (like a waterfall), behind the pupil. They were well-known to the Greek and Roman physicians. They located the opacity of the pupil in front of the lens instead of in that body itself. The lens was considered to be the true seat of vision, that is the percipient organ, as it was the most obvious thing when the eyeball was opened; so accordingly the loss of the crystalline lens would mean total blindness, but since they were aware that after operation for cataract the pupil was rendered clear, and still the sight was not lost but restored, they were forced to believe that the pupillary opacity was situated in front of the lens itself. Our knowledge of the true nature of cataract dates from the beginning of the eighteenth century. Jacques Darier was the inventor of the modern operation for cataract; this was modified by many, as by Beer, Arlt, von Graefe, etc.

*Etiology.* Cataracts may be congenital, due to senility or general diseases, caused by trauma, or secondary to other diseases of the eyeball. These are also called complicated cataracts.

Congenital cataracts are due to either a disturbance in the development or an intrauterine inflammation of the eye.

Senile cataract is by far the commonest form. It occurs very frequently in old people, or those over fifty years of age, as a rule. It is exceptionally observed in younger individuals. We must not fall into the error of calling all cataracts occurring in the elderly, senile, as an old person may have a cata-

ract from trauma, diabetes, or what not. Senile cataract affects both eyes always, but one eye is usually in advance of the other.

Cataracts due to general diseases. The commonest general disease giving rise to opacity of the lens is diabetes. This develops when the amount of sugar in the urine is high and it matures rapidly. Diabetic cataract is due to a disturbed nutrition that affects the whole system and not to the abstraction of water from the lens as was once believed. There is a form of cataract, however, that is due to abstraction of water from the lens and that is the opacity of the lens that occurs in the last stages of Asiatic cholera. As a rule an eye affected with a diabetic cataract recovers as well as any other from the operation. Coma and death, however, now and then follow removal of cataracts in diabetics due to the confinement and shock of the operation. Nephritis also gives rise to cataracts in adults, and rickets to a form of congenital cataract (perinuclear). Syphilis is also a causative factor.

Traumatic cataract. A blow upon the eyeball may rupture the capsule of the lens and, allowing access of the aqueous, cause a cataract. More commonly a piece of wire, wood, tack, or what not penetrates the cornea and inflicts a wound directly in the capsule of the lens. Through inhibition the lens swells, becomes opaque, and finally breaks up through a process of cleavage.

Precisely the same thing takes place if a transparent lens is placed in clear water. If the traumatism affects the posterior portion of the capsule of the lens the vitreous acts in the same way. A cataract may be caused by contusion of the lens without the inhibition of the aqueous, and such at times clears up spontaneously. The history of a traumatic cataract is somewhat like this: In a few hours after the injury to the eye the part of the lens in the neighborhood of the capsular wound is found to be opaque. After a day or so, depending upon the size of the rent in the capsule, the swollen lens fibers protrude from the wound of the capsule into the anterior chamber as flocculent masses. The opacity continues to spread further and further through the lens and new masses protrude through the pupil, as the former ones become absorbed. If the swelling of the lens is not too forcibly pressed upon, the eye remains free from inflammation and pain and the lens becomes gradually absorbed. Within a month or two the absorption may come to a standstill at some period of the disease, due to closure of the lens capsule, and opaque portions of the lens still remain within the shrunken capsular sac, demanding an operation for the restoration of

the sight. As a direct result of the injury to the eye or owing to infection the membranes of the eye and especially the uvea may become inflamed during the course of traumatic cataract and go on to loss of sight or destruction of the globe.

Secondary cataracts; complicated cataracts. The affections most frequently giving rise to cataract by disturbing the nutrition of the crystalline lens are: Violent inflammations of the cornea as an extensive suppuration, irido-cyclitis, choroiditis, myopia of high degree, retinitis pigmentosa, detached retina and glaucoma in the absolute stage. The diagnosis that a cataract is due to some other morbid change in the eyeball can be made by inspection in case the disease affects the more anterior portions of the globe. Morbid changes in the cornea or in the iris, or adhesions between these organs and the cataract may be made out. In deeper affections the resulting cataract often presents peculiarities which make for a diagnosis of complicated cataract, although other evidence of the disease is not apparent. Again in uncomplicated cataract the light perception is always good no matter how dense the opacity of the lens, while in the complicated variety the light perception is found poor or perhaps wanting all together. In complicated cases also the tension of the eyeball may be found too soft showing the presence of choroidal lesions, or too hard, showing a glaucomatous state. The prognosis in these cases is less favorable than in other varieties and the sight is poor from the exciting disease, even if the removal of the cataract is successful.

*Symptoms.* Loss or distortion of vision is the only symptom of cataract, and it varies according to the stage of the latter and also the situation of the opacity. Besides simple failure of vision, cataract patients often complain of specks before the eyes and of multiple vision. Later on as the opacity increases, the sight becomes worse and worse and the patient becomes blind, save to light. Myopia frequently develops in the beginning of cataracts, due to swelling and increase in refraction of the lens, so that reading glasses can be laid aside, but at the same time the patient cannot see so well in the distance as formerly. The laity call this second sight. If these cases are observed long enough, they all develop cataracts.

*Treatment.* There is no remedy that will cause an opaque lens to again become transparent. Operation in carefully selected cases yields brilliant results, 90 to 95 per cent. of cures. The operative procedure depends on whether the cataract is hard or soft. In soft cataracts the operation is discission or solution, and in hard cataracts extraction or the

removal of the lens in toto from the eyeball. Extraction can only properly be performed in the stage of maturity, for, as has been noticed, in that stage the lens strips easily out of its capsule, and there is less tendency than in the hyper-mature or immature stages to prolapse of vitreous during the operation. In immature cataracts soft cortical lens substance is apt to remain behind in the capsule and act as an exciting cause of inflammation of the iris and ciliary body. This is the principal danger in cataract operations in the hands of the young operator, as he often lacks clinical ability to diagnose the stage of maturity. Professor Born has devised a maturing operation that has been quite satisfactory in proper cases in my hands. I will show you a case of maturing three weeks after operation.

## HYDROCEPHALUS, WITH REPORT OF A CASE.

By W. MORGAN HARTSHORN, M.D.,

*Adjunct Attending Physician, St. John's Guild; Pathologist, Nursery and Child's Hospital.*

The accumulation of serous fluid in hydrocephalus may be either within the ventricles of the brain, resulting in what is known as internal hydrocephalus, or it may be within the subarachnoid space, the interval between the arachnoid (the delicate membrane enveloping the brain, situated between the pia mater internally and the dura mater externally) and the vascular pia mater—this condition being termed external hydrocephalus.

It is classed as congenital or acquired, acute or chronic. The acute form may be internal, external or a combination of both. In etiology it may be idiopathic, but generally it is secondary to such conditions as cardiac disease, pertussis, rachitis, tumors of the posterior fossa, inflammatory processes of the meninges and brain, and acute febrile conditions, as typhoid and pneumonia.

Chronic internal hydrocephalus may be the result of an operation for spina bifida, or may be produced by some condition of internal pressure mechanically. It often represents the termination of an acute inflammatory process.

The etiology of the congenital or intra-uterine variety is unknown. In some cases syphilis may be accountable, although this is doubted; alcoholism, tuberculosis and nervous diseases on the part of the parents have been assigned as causes. It may be hereditary. Hergott claims an intimate relation between congenital hydrocephalus and cretinism, and because of its association with spina bifida and other forms of malformations it is considered by some

a defect of structural development. Czerny explains the condition as due to pathological change of the adrenals causing disturbances of the cerebral circulation.

In occurrence congenital hydrocephalus is not considered rare, 16 cases in 12,055, or 1 in 750, being reported by Schuchard; 1 case in 938 by Tweedy; 1 case in 900 by Merriman. Tarnier computes the frequency as 1 case in 2,000; La Chapelle and Duges found 15 cases in 43,555, or 1 in 2,900.

The mortality for the fetus is very high, while that of the mother is quoted as being 25 per cent. by Poulet and Spiegelberg. Hirsch reports 159 cases with a maternal mortality of 38.

The pathology of this condition is, in brief, an enormous distention of the ventricles, thinning of the walls by intraventricular pressure, and, at times, a thickening of the ependyma with a sclerotic condition of the choroid plexus. The amount of fluid often amounts to several quarts.

The following case occurred during my service at the Nursery and Child's Hospital in October, 1909:

The mother was a primipara, single, aged twenty-two years, native of Ireland, and a domestic by occupation. She was admitted September 11, 1909. Her personal and family history were absolutely negative.

Examination upon admission showed abdomen ovoid, the walls thick, the median line pigmented, striae abundant. The abdomen was not very large or dome shaped. Presentation vertex; position, R. O. A. Fetal heart R. U. Q., frequency 120, loud.

Vaginal examination revealed a roomy vagina, the cervix soft, admitting one finger.

Mensuration: Distance between the spines, 21 cm.; between the cristæ, 27 cm.; right oblique, 22 cm.; left oblique, 23 cm.; conjugate ext., 19 cm. Promontory not felt. Urinalysis negative.

Her pregnancy was uneventful. The first stage of labor began October 8, five weeks after admission; pains slight; considerable backache; dilatation slow, occupying about twelve hours. Second stage: Pains short and frequent; head very slightly engaged. This stage lasted twenty-four hours, the patient and fetus being in good condition.

Upon examination, there was found extending into the cervix a soft mass, which was thought at one time to be a breech, but later the sutures could be felt, with the fontanelles widely distended.

Abdominal examination showed the extremities at the left lower quadrant, the fetus at the costal margin, and the breech extending well out to the



right. Above the symphysis was a distinct bulging mass, moderately hard upon palpation, resembling a distended bladder. The fetal heart sounds were quite strong, the point of maximum intensity at right upper quadrant, just above the umbilicus.

In this stage of labor, at first, the pains were fairly good, but after six hours they lost their intensity and she went to bed and slept. In the morning the pains came on moderately slow and ineffectual, the head still slightly engaged. Quinine was given, resulting in stronger pains but very little progression.

At this time when the case was seen by me, the diagnosis of breech and R. O. position had been made. The fetal heart was heard faintly above the navel, upon the right side. The protuberance above the symphysis was quite noticeable. Although the head was thought to be large, yet it seemed possible to extract it by forceps, as the woman was becoming exhausted and the cervix was practically fully dilated.

Accordingly, at first, solid blade forceps were introduced, but as they slipped immediately they were discarded and axis-traction applied, but after several attempts it was found that a satisfactory application was impossible.

For this reason perforation was accomplished with the Smellie perforator. Immediately there was a gush of foul smelling fluid, at least one quart being estimated. Delivery was then easily accomplished by means of a cranioclast and a fetus otherwise normal was delivered.

The duration of the entire labor was thirty-six hours and twenty minutes. The child was a female weighing five pounds eight ounces.

#### Dimensions:

Occipito-frontal,	18 cm.	Normal, 11.5 cm.
Biparietal,	11 cm.	Normal, 9.5 cm.
Occipito-mental,	18 cm.	Normal, 14.0 cm.
Suboccipital breg.,	13 cm.	Normal, 9.5 cm.
Bisacromial,	14 cm.	Normal, 12.0 cm.

#### Circumference:

Occipito-frontal,	52 cm.	Normal, 35 cm.
Suboccipito-frontal,	45 cm.	Normal, 30 cm.
Length,	54 cm.	Normal, 50 cm.
Bisacromial,	36 cm.	Normal, 33 cm.

At the autopsy the cerebrum was apparently obliterated and all that remained of the brain was a small cerebellum.

The case was instructive in that it presented the diagnostic features of a hydrocephalus which were certainly impressed upon the doctors present.

The puerperium was uneventful. A rise of temperature on the third day to 103 subsided after a vaginal douche and elevation of the bed, so that the patient was up and about on the eleventh day.

50 Central Park West.

**End Results of Gallstone Operation.**—Dr. L. Arnsperger (*Münch. med. Wochensch.*, No. 1, 1912) analyzes the statistics of the surgical clinic of Heidelberg, comprising 230 cases with a primary operative mortality of 16, that is, 6.9 per cent. From his investigations as to the most useful method of gallstone operation and the prognosis, the author draws the following conclusions: 1. Of 147 cases of operation the later history of which was ascertained by correspondence, chiefly with the family physician, or by personal examination, 113 cases (64.6 per cent.) were completely cured, while 19.7 per cent. still exhibited slight disturbances, but not sufficient to keep them from work, thus giving a total of 84.3 per cent. of satisfactory results. Of the remainder, 2.1 per cent. of the patients suffered with disorders having no relation to the operation, while 13.6 per cent. were either unimproved or had to submit to a recurrence operation. 2. The best results were obtained especially in inflammatory conditions of the gallbladder, those from cholecystectomy being particularly satisfactory. Conditions are much less favorable in patients with numerous small stones and a patent cystic duct who have previously passed calculi. In these extirpation of the gallbladder is advisable even when there are no marked changes in its walls. Cholecystostomy does not afford any positive guarantee of the removal of all the small calculi, while concretions in the deep ducts are frequently overlooked even when these are opened up and probed. 3. After removal of long existing stones in the choledochus concretions formed in the liver may gradually slip downward and give rise to false recurrences. 4. After cholecystostomy any disturbances that may recur are due in one-half the cases to stones that have been left behind, while in the other half they result from an inflamed shrunken, strongly adherent gallbladder. True recurrences were never observed in the clinic. 5. Cholecystostomy is therefore to be rejected in all inflammatory processes of the gallbladder with a tendency to adhesions and secondary contraction. It is also necessary to prevent fixation of the top of the gallbladder, especially when greatly distended, to the abdominal wall. 6. Hence cholecystostomy is only to be undertaken where there are a few large calculi that can be radically removed, where the gallbladder wall is intact, or when special conditions, weakness of the patient, difficult anesthesia, tense adhesions, and deep position of the gallbladder contraindicate extirpation. 7. Complications of gallstone disease, which later may give rise to disorders of the pancreas, and movable kidney on the right side deserve particular consideration.

PUBLISHED  
BY THE  
**International Journal of Surgery Co.**

**FRANK C. LEWIS, M.D.,** Managing Editor.

100 William St.—Woodbridge Building.  
New York, N. Y., U. S. A.

To whom all communications intended for the Editor, original contributions, exchanges, books for review, as well as communications relating to the business of the Journal, should be addressed.

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Though not required for publication, all communications must contain the author's name and address, otherwise no attention will be paid to them.

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## Editorial Department

NEW YORK, APRIL, 1912

### THE SO-CALLED CÆCUM MOBILE.

Less than three decades ago typhlitis and perityphlitis dominated the pathology of the right iliac region. Then came appendicitis, which has since so completely occupied the field that the possibility of primary inflammatory processes in the cecum has been seriously doubted, if not rejected. In recent years, however, it has been questioned by some authors whether the pendulum has not swung too far, and sufficient clinical evidence has been brought forward to show that in many cases diagnosed as chronic appendicitis the chief site of the disease was in the cecum and ascending colon, the appendix being little if at all involved.

Several years ago Professor Wilms, of Heidelberg, pointed out that a symptom-complex similar to that of chronic appendicitis can be produced by a movable cecum (cæcum mobile), and his views have been adopted by a number of other surgeons. He found that in 20 to 25 per cent. of his cases operated on for chronic appendicitis the appendix appeared perfectly normal, this showing that the patients' disturbances must have been due to other causes, the most prominent being a movable cecum. After resort to cecopexy in many such cases the previously existing disturbances, which had not been relieved by appendectomy, rapidly disappeared. On the other hand, Lane, whose views have gained

many adherents, has shown that prolapse of the cecum as well as of the colon is rather a common condition, and that the displaced organs contract adhesions in abnormal locations which may lead to kinking, narrowing, twisting, and consequent impairment of the bowel functions. The treatment proposed by Lane consists chiefly in extensive resections, preferably of the entire colon, while Connell loosens the adhesions, draws up the prolapsed bowel from the pelvis, and prevents its descent by fixing it to the abdominal wall. Other surgeons who have devoted attention to this subject are W. J. Mayo, Murphy, La Roque, Whitford, Tuttle, etc.

The medical aspect of cæcum mobile is set forth in detail in a most instructive paper by Dr. Craemer (*Münch. med. Wochenschr.*, No. 12, 1912). He thinks that we have been so accustomed to look upon the appendix as the scapegoat that we have forgotten that there is such a thing as the cecum, which may be the independent site of disease. He is also inclined to attribute the scanty literature on chronic appendicitis, as compared with the enormous output on the acute form, to the frequent failure of surgical treatment, based upon errors in diagnosis. In his opinion movability of the cecum is of such common occurrence that it is not to be considered as a pathological entity, unless in exceptional cases of marked development, where it may lead to occlusion of the bowel from kinking or torsion. For this reason it cannot give rise to symptoms similar to those of chronic appendicitis, and when these are present in connection with cæcum mobile they are usually due to something else, particularly typhlitis and perityphlitis. Even the healthy cecum and ascending colon are very susceptible to catarrhal processes owing to the tendency to stagnation of soft fecal masses in this region, with resulting fermentation, irritation, infection and inflammation, which may extend to the serous covering and produce a veritable perityphlitis. Owing to the constant gaseous distention of the cecal pouch in these cases insufficiency of the ileocecal valves is likely to occur, with regurgitation of fecal matter into the small intestine and additional symptoms from this source.

In view of the fact that, according to Craemer, operative measures are rarely required in the treatment of this class of cases, their differentiation from true chronic appendicitis, which is still a distinctly surgical affection, is correspondingly important. A careful analysis of the symptom-complex described by him, however, shows that the diagnosis is far from easy. The points upon which

he lays stress may be briefly summarized as follows: Pain in so-called cæcum mobile is not localized at McBurney's point, but the entire cecum and ascending colon are usually sensitive to pressure, especially when the gut is rolled between the hands. In some instances the pain can also be elicited on the left side. Frequently there is a roundish smooth tumor situated directly beneath the abdominal wall and sensitive to pressure. If the contents of the ascending colon are forced toward the cecum pain is felt in the right iliac region, while if the cecal contents are pushed toward the colon the pain subsides, and this also happens when the cecum is pressed upon with the hands. In nearly all cases the patients complain particularly of gaseous distention with marked borborygmi and discomfort. Besides the presence of the tumor, Craemer attributes particular significance to the character of the stools. These patients may be constipated or have diarrhea alternating with constipation. The feces are sticky, clay-like, often flattened, irregular, slimy, discolored, and very offensive. They often contain undigested particles of food, particularly vegetable. Microscopical and chemical examinations of the stools are also of value in the diagnosis. Aside from the intestinal symptoms, the subjects of so-called cæcum mobile, which, as we have seen, is really typhlitis and perityphlitis, frequently suffer with dyspeptic disturbances and attacks of colic due in many instances to the insufficiency of the ileocecal valves. They are also inclined to mental depression, lassitude and insomnia—in other words, neurasthenic phenomena—probably the result of auto-toxemia from the marked fermentation processes in the dilated cecal pouch.

As regards treatment, Craemer is strongly opposed to operation, pinning his faith to medicinal and hygienic measures, massage, electricity, etc. The chief significance of his article, however, is that it demonstrates the existence of typhlitis and perityphlitis as pathological conditions frequently simulating chronic appendicitis. Further, it tends to show that movable cecum in the vast majority of cases does not produce symptoms, and only becomes of medical interest when complicated with typhlitis and perityphlitis. These views are so greatly opposed to those ordinarily entertained that they are worthy of serious consideration. They make one doubt the efficiency of surgical intervention in many cases of so-called chronic appendicitis or the general utility of the various operative procedures for relieving a prolapsed or adherent cecum. At any rate, they admonish to greater care and thoroughness in the diagnosis.

## **OUR GYNECOLOGICAL NUMBER.**

It affords us much pleasure to announce that the May number will be devoted to a symposium on gynecology. Contributions have been received from a number of prominent gynecologists, and we can assure our readers that they will find much of practical interest on this subject, both from a diagnostic and therapeutic viewpoint. Excellent illustrations have been already furnished and others are being especially prepared. If you have some medical friend who might be interested in this special number please inform us, so that we may mail him a copy.

## **GYNECOLOGICAL HINTS.**

By RALPH WALDO, M.D., New York.

Sepsis in most puerperal cases starts as wound infection at the vulva or lower end of the vagina, and can generally be prevented by moistening the vulva pads with a bichloride solution 1 to 5,000. This should be continued for about five days.

The umbilical cord should not be cut until after it stops pulsating, especially when the labor has been severe. Many infants have been injured by too much violence during resuscitation.

A woman should not be starved after delivery. The more food she is given within reason, the better.

The breasts should never be massaged or pumped, as disregard of this caution may lead to mammary abscess.

In a general way secondary operations on the perineum should not be performed until the end of at least two months. If they are performed earlier the lochia are apt to interfere with union. It is not necessary to stop nursing an infant for more than a few hours following operations on the perineum.

After all operations of the perineum the bowels should be kept freely open.

When possible it is best to operate for laceration of the perineum before the placenta has been delivered. There is less annoyance from bleeding. The best material is chromicized gut No. 3. It cuts less than silkworm gut and does not annoy the patient so much. The sutures should not be drawn too tight, for there is always swelling of the parts that will cause strangulation. A very good needle to use is a full curved three-inch Hagedorn.

## Department of Railway Surgery

### OFFICIAL ORGAN

THE ASSOCIATION OF SURGEONS OF THE SOUTHERN RAILWAY.  
ASSOCIATION OF SURGEONS OF THE PENNSYLVANIA LINES.  
ASSOCIATION OF SURGEONS OF THE SEABOARD AIR LINE RAILWAY.

### NOTICE TO PENNSYLVANIA RAILROAD SURGEONS.

The next annual meeting of the Railway Surgeons' Association of the Pennsylvania Lines East of Pittsburgh will be held in Atlantic City, May 31st and June 1st. Further details will be given in our forthcoming program, which promises to be one of unusual interest. The committee on arrangement has secured the Marlborough-Blenheim for "headquarters," meeting place, and banquet. This will be especially advantageous this year, since the American Medical Association is to have its headquarters at this hotel, and those of our association who intend to remain will be conveniently located and will doubtless meet many of their friends there as well. The banquet will cost \$2.00 per plate and will be served Saturday evening, June 1st, in one of the private dining rooms, which has been reserved. Our members will find it desirable to engage rooms at the Marlborough, and do it very soon, as otherwise they may not be able to secure accommodations.

The following are the rates for rooms at the Marlborough-Blenheim:

Single room, without bath, 1 person, \$2, \$3, and \$4 per day, European plan.

Single room, without bath, 1 person, \$4, \$5, and \$6 per day, American plan.

Single room, with bath, 1 person, \$4, \$5, and \$6 per day, European plan.

Single room, with bath, 1 person, \$6, \$7, and \$8 per day, American plan.

Double room, without bath, 2 persons, \$4, \$5, and \$6 per day, European plan.

Double room, without bath, 2 persons, \$8, \$9, and \$10 per day, American plan.

Double room, with bath, 2 persons, \$6, \$7, and \$8 per day, European plan.

Double room, with bath, 2 persons, \$10, \$11, and \$12 per day, American plan.

This will be the fifth annual scientific meeting. The first four have been enthusiastic gatherings—successes in every way—and we desire to make this the best one yet.

Many of the members were accompanied by their ladies at the last meeting. This plan succeeded so well that we intend to try it again. Transportation

for members of surgeons' families will be issued over the Pennsylvania Railroad.

At our last meeting the INTERNATIONAL JOURNAL OF SURGERY was made the official organ of the association and a copy is being sent regularly to each member. The transactions of our last annual session are in course of preparation for publication in book form (cloth bound) and will be ready for delivery early in May.

It is earnestly hoped that every Pennsylvania R. R. surgeon will make an effort to attend this meeting.

A. W. COLCORD,  
*Secretary.*

### ASSOCIATION OF SURGEONS OF THE SOUTHERN RAILWAY COMPANY.

Seventeenth Annual Meeting, New Willard  
Hotel, Washington, D. C., June  
11, 12, and 13, 1912.

OFFICERS.—Surgeon J. H. Mitchell, president, Mt. Vernon, Ill.; Surgeon R. L. Gibbon, first vice-president, Charlotte, N. C.; Surgeon R. T. Ramsey, second vice-president, Elba, Va.; Surgeon F. A. Webb, third vice-president, Calvert, Ala.; Surgeon W. R. McKinley, fourth vice-president, Columbus, Miss.; Surgeon Geo. Ross, Historian, Richmond, Va.; Surgeon J. U. Ray, secretary-treasurer, Woodstock, Ala.

### PRELIMINARY PROGRAM.

Surgeons are requested to report cases of interest; and those who have not sent in the titles of their papers are urged to do so at once, as it requires considerable time and work to arrange the final program.

The following titles have been received:

"Wright's Solution in Sloughing Wounds," Surgeon H. A. Royster, Raleigh, N. C.

"Report of a Case: Compound Dislocation of the Ankle," Surgeon R. J. Noble, Salem, N. C.

"Dislocation of the Ankle Joint," Surgeon C. D. O'Hara, Williamstown, Ky.

"The Sacro-Iliac Joint and its Injuries," Surgeon R. L. Payne, Sr., Norfolk, Va.

"Malingering," Surgeon C. H. Davis, Knoxville, Tenn.

"Treatment of Delayed Bony Union," Surgeon C. L. Guice, Gadsden, Ala.

"Report of Some Unusual Surgical Cases," Surgeon W. B. Hardeman, Commerce, Ga.

"Report of Case: Extensive Injury to Both Lids and Eye-ball with Good Recovery," Surgeon J. L. Minor, Memphis, Tenn.

"Emergency Surgery," Surgeon E. P. McCollum, Greensboro, Ala.

"Organization: Each Surgeon as a Factor," Surgeon F. A. Webb, Calvert, Ala.

"Injuries to the Elbow Joint," Surgeon H. P. Cole, Mobile, Ala.

"Operative Treatment in Injuries of Elbow Joint," Surgeon S. R. Miller, Knoxville, Tenn.

The management of the Southern Railway and allied lines are interested in the success of this association and desire that the local surgeons show their interest in the work by attending the annual meetings, reading and discussing papers and reporting cases that are of interest and mutual benefit to the surgeons and the railway company.

If you will read a paper or report a case send me the title on receipt of this announcement.

The New Willard Hotel will be the meeting place.

The following resolution was adopted at the 1909 meeting:

*"Resolved, That each member file with the secretary his autograph and photograph before next annual session, to be permanently kept and exhibited at each annual session."*

Only about half of the membership have complied with this resolution, and I hope the balance will "smile and look pleasant" and send me a copy at once.

A few of the members have overlooked paying their dues for 1911. I have plenty of blank receipts and will be glad to fill them out on the receipt of \$2.00 from the delinquents.

At the last session of the association the annual dues were raised from \$2.00 to \$3.00 per year beginning with 1912. Those delinquent for 1911 can send me \$5.00 and I will mail them receipt for both years.

There will be a great deal to interest the surgeons at the coming meeting, and if you do not want to wait at the secretary's desk for your 1912 receipt send me \$3.00 now and I will mail it to you.

The steady improvement of each meeting over the previous one will be evident at this meeting, and it is of importance that each member of the association be present, and by his presence and work assist in the success of the session.

I hope that nothing will occur to prevent your attending.

J. U. RAY,  
*Secretary and Treasurer.*

## EXPERT EVIDENCE IN CASES OF TRAUMATIC NEUROSIS.\*

By H. F. GILLETTE, M.D., Cuba, N. Y.

In considering the question of traumatic neuroses, we approach a subject of especial interest to railroad surgeons, but more than all of vast financial consequences to the railroad company who is called upon to settle claims coming under this well-worn heading.

John Erichsen, that eminent English surgeon whose activity covered the years from 1850 to 1880, was the one who threw this bomb shell into the midst of the medical world, fraught with such intricate consequences to the medical profession and the courts of every civilized land.

Volumes have been written on the subject of Erichsen's disease—spinal concussion, litigation spine, railway spine, spinal sprain, hysterical spine and the traumatic neuroses generally—and the end of this special literature is still far away. Order will not be restored out of chaos until the question of expert testimony is placed upon a proper and fair basis—fair and honest to both parties concerned in litigation.

The condition as described by Erichsen partook of the nature of a chronic meningo-myelitis. When Charcot demonstrated the identity of hysteria in the male with that of the female, a new cause for these nervous effects was advanced.

Shakespeare said of Cleopatra, who probably charmed Caesar by her very hysteria, that: "Age cannot stale nor custom wither her infinite variety." If this quotation, so pleasingly expressed, suggests the multiplicity of symptoms arising from hysteria, even more would it apply to traumatic neuroses, whose varied phases present new features each day. Shock to the nervous system in cases where this has been unstable previous to the time of sustaining the injury would resemble in its after-effects hysteria, while in a previously well balanced nervous system neurasthenic symptoms would predominate.

The various steps taken in a railroad accident case are in themselves needful and wise on the part of the company, but the activity of the claim department following the receipt of an injury is to the injured person suggestive of an accident, with its possible "Gold Cure"; for gold will do more to cure accident cases than all the surgeons and neurologists in the land. So I say that the activity of the claim department, the solicitude of railroad em-

\* Read at meeting of Railway Surgeons' Association of Pennsylvania Lines East of Pittsburgh, Sept. 22-23, 1911.

ployees, the sympathy of surrounding friends, and the tenderness and extreme care which the medical attendant bestows on the injured, one and all tend to suggest that he is severely hurt, and he soon appreciates that he has a fine case against the company.

Had this same injury been sustained by an employee of the company, a bandage or a strip of adhesive plaster would have dismissed the case. The employee is used to shocks and knows that accidents will come to all sooner or later; so his nervous system does not break down under a slight accident.

I well remember a strong robust farmer who was hit by a fast train while driving over a highway crossing. On his way home in the care of his friends and medical attendant, a lawyer stopped the conveyance and said to the injured person: "Put your case in my hands and we will collect good damages"—words strongly suggestive to the injured man. He dragged one of his feet for two years, when he settled with the railroad and immediately was cured and has been working since.

Upon the expert who testifies in this class of cases is imposed the necessity of being competent and honest, for in ascertaining and estimating the amount of compensation to be awarded in actions for personal injuries, it is necessary to consider mental anguish, physical pain, and the extent and permanency of earning power. "An ideal expert is one who by study and experience has become especially learned, or skilled in some branch of medical science, and whose judgment and opinions are therefore sounder than the average physician."

Against this ideal condition is the opinion of Judge Bartlett, Justice of the Appellate Division of the New York State Supreme Court. He says: "The discredit into which expert evidence has fallen is mainly due to the prevailing impression that the experts almost invariably testify in the interest of the party by whom they are called and paid."

As a remedy for this condition of things which has brought this criticism from so learned a justice, and which is being noted by the men in the jury box, several expedients have been proposed. In New York State the State Bar Association and the State Medical Society have by committee formulated a bill which has not yet, I regret to say, passed the legislature. This agreement allows each party to the litigation to employ experts the same as now, and an additional force is provided for in the law by having the State Medical Society recommend certain men who will examine the case with care and advise the court independently of any

expert that may be retained by the parties in litigation.

This committee in writing the law wished to do away with all expert evidence under the present plan, and confine all such testimony to that which advises the court directly in an impartial manner.

Under the proposed plan the parties in litigation would have medical witnesses testify only on questions of fact the same as any other witness. It was thought, however, that this was too radical a change to make for the first step, but it was expected that after the law was given a trial the ridiculous position of the medical experts retained by the parties in litigation, as compared with that of the impartial court experts, would do away with that form of testimony.

Undoubtedly this law will be soon enacted and a start will be made to rescue the medical profession from its present unfortunate and embarrassing position

### SOME ACCIDENT CASES OF INTEREST.\*

By C. F. ABBOTT, M.D., Elmira, N. Y.

To what extent are railroad accidents due to carelessness on the part of the injured or others?

To what extent does luck or Providence enter into the result of an accident?

To what extent is the equipment of the company responsible for accidents?

Why does ill-luck or misfortune seem to pursue some poor victim almost without let-up?

These are some of the questions that have confronted me in my work as company surgeon. When I speak of equipment being responsible for accidents I wish it understood that I am not indicting the railroad company.

The histories here given showing how the accident occurred are the stories of the victims of the accident or of some other person who appeared to know something about it.

Injuries due to the patients' carelessness:

Case 20. C. D., aged forty-nine, old employee, car inspector at the time of accident. In connecting the air hose of a train that was being made up, he leaned over the drawheads to release the air lock on the end sill of one of the cars. This, I understand, is contrary to orders issued to car inspectors. As he leaned over, a car that was thrown into the switch collided with the cars already there and the impact was sufficient to push together the cars between which he was. A crush of the abdomen was the result. After suffering for two and one-

\* Read at meeting of Railway Surgeons' Association of Pennsylvania Lines East of Pittsburgh, Sept. 22-23, 1911.

half hours he died. The post mortem showed a ruptured liver.

Case 80. J. C., aged fifty-one, boss car inspector, jumped off a moving freight train on the inside of a curve just as a passenger train, which he had forgotten about, came in the opposite direction. He was struck by the pilot beam of the passenger engine and thrown against the running gear of the freight train. Result: Lacerated scalp, fracture of the lower two inches of the scapula, and contusions of the upper part of the body.

Case 85. E. B., aged twenty-four, laborer at an ice-house equipped with a platform elevator. While descending on the elevator a plank became wedged between elevator and shaft. Without stopping the machinery, which continued to unwind the cable, the patient removed the plank with a pike pole and fell with the elevator to the bottom of the shaft. Contusions and a general shake up resulted.

Accidents due to carelessness on the part of another:

Case 38. I. L., aged twenty-nine, laborer at the roundhouse. The patient was an educated young man working as laborer until a better position could be procured. He was cleaning wet sand out of the sand box of a locomotive. As he pushed the last portion through the valve the man in the engine cab closed the valve and nipped off the end of his left second finger.

Case 129. E. G., aged thirty-two, fireman, was firing a shifting engine whose engineer had poor vision. It was night. The air pump was acting badly and the patient was on the running board trying to remedy the difficulty. The engine was drifting backward and ran into a switch in which were some cars. On coming in contact with the cars the impact was so great as to throw the patient from the running board to the ground. Severe contusions resulted.

Case 140. E. R. S., aged fifty-eight, driver of a bakery wagon, drove on to a crossing provided with gates, and as they were up he supposed it was safe to go on. He was struck by the engine of a passing train. The gate tender was seen sleeping soundly in his chair nearly an hour after the accident occurred. The victim had a few abrasions and contusions and a small laceration of the nose, but he suffered a severe nervous shock which has disabled him for several months. A damage suit is pending.

A case or two to illustrate the act of Providence in preserving life:

Case 80 illustrates this. To be a human shuttlecock between trains moving in opposite directions is an experience not to be desired and the patient's

escape from death is marvelous.

Case 85a. C. S., aged twenty-three, freight brakeman. Early in the morning this man was struck by the pilot of a moving locomotive and thrown between the tracks. Contusions and abrasions only resulted.

Case 128. R. B., aged twenty-six, freight brakeman. This man was walking over the train from the cabin car towards the engine while the train was climbing a long steep grade. It was shortly after midnight, and as he stepped from one car to the one ahead he thought he heard a brake shoe dragging. He stopped at the end of the car to listen just as the engine slipped to regain its hold on the rail in a second. The resulting jerk threw the patient between the cars to the track, but as he fell he threw both arms around the drawheads, dragged himself to his feet, stepped from between the cars, pulled himself up on the train, and returned to the cabin car. His injuries consisted of lacerations of the scalp and forehead and abrasions and contusions of the body and limbs. His escape was marvelous. At one time he was director of physical culture in a Y. M. C. A. gymnasium, and this might explain his suppleness on this occasion.

Injuries due to equipment:

Case 14. An engineer was opening a switch spring which was stiff, and the handle flew up suddenly and with great force and struck him in the face. Result: Lacerated lower lip and cheek.

Cases 92, 100a and 107. All the patients were "green" freight brakemen, struck by the handle of the release distance signal lever, two of them at the same point. All sustained lacerated wounds of the face. The springs in these switches were stiff and strong; the levers flew up violently, and the victims were unable to get out of the way.

Case 121. W. M., freight brakeman, old employee, was brushed off the side of a box car near the top by the blades of an old-fashioned high switch target set too near the track. The patient fell to the pilot beam of the engine pushing the car and thence to the ground. Result: Contusions and slight abrasions.

To illustrate the ill-luck or misfortune of some men:

Cases 4 and 132. H. R., aged forty-one, yard conductor. He has had one accident after the other, but none very serious. The first was early in his railroad experience and resulted in the loss of part of the right index finger. His shins are discolored from frequent "barking." My experience began with him in January, 1909. He had jumped from a car on to a strip of ice concealed by a light



## Surgical Gleanings

snow fall. He sprained his ankle and sat down heavily upon his instep. After he went back to work his foot slipped out of a strap step of a freight car and he came down heavily upon the previously injured foot. This disturbed the relations of the small bones of the foot and operative procedure was required to remedy it. He is still disabled.

Cases 22, 57 and 68. J. R., assistant track foreman. My first experience with him was when his cheek was cut quite badly by a chip of steel from a rail that was being cut in two; my second, when he suffered a three-inch scalp wound due to a flying bolthead. The men were unloading ties from a car to the ground when one tie struck the ground, the bolthead shooting through the air and cutting his scalp. My third experience with him was when he had an abrasion of the cheek. He was prying up a tie with a pinch bar. The bar slipped and he fell against it. Later he came to see me suffering from laceration of two fingers. He had been caught between a switch point and the mainrail while cleaning a switch. This time Dr. Ford had charge of his case.

The last case was Dr. Ford's, but I saw the patient for him on one occasion and had known him for years.

A. P. E. (queer combination of initials) had one misfortune after another—sickness alternating with accident for about two years, I think. A short time before his last accident he came near losing an eye after being struck by a piece of steel. Dr. Voorhees looked after him, and the patient returned to his work as car repairer and member of the wrecking crew only to fall from a steam derrick, cracking a rib or two on the right side. While convalescing from this he developed a phlebitis of the left saphenous vein. This was the occasion when I saw him for Dr. Ford during his period of recovery from this condition. He died suddenly after using the commode. I assisted in the autopsy and we found an embolus of the pulmonary artery. The theory as to cause of death was that the embolus was dislodged while straining at stool,

201 So. Main street.

### AMERICAN MEDICAL EDITORS' ASSOCIATION.

The Annual Meeting of this Society will be held at Atlantic City, N. J., June 1st and 3rd, with headquarters at the Marlborough-Blenheim Hotel.

Dr. Thomas L. Stedman, Editor of the *Medical Record*, will preside.

The Annual Banquet will be held on the evening of June 3rd. Every editor and those associated with medical journalistic work will find this meeting worth attending.

J. MACDONALD, JR., M.D.,  
Secretary and Treasurer.

**Treatment of Erysipelas.**—Dr. Thoden van Velzen (*Münch. med. Wochens.*, No. 6, 1912) states that in many years of practice he has not lost a single case of erysipelas under his method of treatment. In light cases he recommends painting the erysipelatous area every hour with acid carbol. liq., 15 min., ol. terebinth., 1 oz. Severe cases in which the disease spreads over one-half of the body are treated with dressings soaked in sublimate solution or preferably in absolute alcohol. Internally he administers camphor water, one tablespoonful, three times daily, and also collargol, 15 grains twice daily in enema. The applications of alcohol are usually made twice daily, but can be used more frequently if necessary.

**Operative Treatment of Injuries of the Pleura and Lung.**—Dr. E. D. Schumacher (*Deut. med. Wochens.*, No. 6, 1912) believes that operative treatment for injuries of the pleura and lung is best carried out under differential pressure. By doing the operation in a special cabinet severe respiratory and circulatory disturbances resulting from acute pneumothorax are prevented, or, if present, removed. Another advantage is that the surgeon is enabled to more readily find minute tears in the lung after it has been artificially inflated than where it is collapsed. After operation the chest wound can be completely closed, as there is no risk of pneumothorax or subsequent infection. The simplest operative technic consists in a large Mikulicz-Sauerbruch incision in the fifth, sixth or seventh intercostal space. Among 7 cases operated upon there were 3 cures.

**Treatment of Acute and Subacute Inflammations of the Joints.**—Professor H. Hochhaus (*Therapie der Gegenw.*, Hft. 1, 1912) has had a very favorable experience with extension in the treatment of gonorrheal arthritis, especially in cases presenting a marked doughy swelling and extreme tenderness; also in some forms of subacute and chronic rheumatic arthritis. Extension was employed in fifteen cases of arthritis which had proved unamenable to other methods, including ten affecting the knee joint, four the hand, and one the elbow joint. It was used chiefly during the acute painful stage and was continued until the tenderness had diminished to a sufficient extent to permit of active and passive movements. If these were followed by recurrence of the pain, extension was resumed for a short time. In ten cases the results were excellent and in three satisfactory, while in two Bier's hyperemia proved superior. The most striking feature of this treatment was the shortening of the stage of painful swelling. In connection with extension other measures were occasionally employed, such as puncture in the presence of marked exudation, hyperemia, and massage in the later stage for the prevention of stiffness. Ever since Hochhaus has resorted to extension no ankylosis has occurred after gonorrheal inflammations.

**Treatment of Phlegmons of the Upper Extremities.**—Dr. Knoeske (*Münch. med. Wochenschr.*, No. 3, 1912) has obtained excellent results with the method of Noeske in preventing the spread of phlegmons. This consists in cutting the lymphatics on the inner surface of the upper arm immediately below the axilla, the incision extending down to the fascia. In a recent case of severe phlegmon of the hand and forearm with a high temperature and albumin in the urine, in which amputation seemed the only recourse, Knoeske made a complete circular incision through the skin of the arm down to the fascia, the larger veins being ligated. The result was striking. On the following morning the inflammatory swelling had greatly subsided, and in spite of the extent of the phlegmonous process the functions of the hand and wrist were almost completely restored. This method seems to be indicated particularly for cases of severe diffuse inflammation.

**The Result of Operation in Cerebral Tumors.**—Professor A. von Eiselsberg (*Wiener. klin. Wochenschr.*, No. 1, 1912) presents a report based upon 100 cases, comprising 32 tumors of the cerebrum, 11 of the cerebellum, 12 of the cerebello-pontine angle, 13 of the hypophysis, as well as 10 palliative operations and 22 errors of diagnosis. Of the patients operated upon for cerebral tumors 9 died in consequence of operation and 12 survived, 8 of the latter being still alive after periods of one to five years. Of the cases of cerebellar growths, 5 died as the result of operation and only one showed any marked improvement, this being a case of cyst, which is still living after two years. Only 4 of the 12 patients suffering with tumor of the auditory region survived the extirpation of the growth, and these have remained in a comparatively favorable condition.

**Surgical Treatment of Acute Pancreatitis.**—Professor W. Koerte of Berlin (*Archiv f. klin. Chir.*, Hft. 3, Bd. 96) has operated on 34 of 44 cases of acute pancreatitis, with 18 recoveries. Attacks of pain in the epigastrium had previously been present in the majority of cases, although they were not characteristic, since they could have been due to gallstones, cholecystitis, duodenal or gastric ulcer. The acute stage of the disease usually set in with violent epigastric pain, eructations, vomiting, as well as a tendency to collapse. The only symptom to some extent pathognomonic was a tender resistant area in the epigastrium. The Cammidge reaction proved of little value in the diagnosis of acute pancreatitis, which is always doubtful. As regards the operative prognosis, surgical intervention during the acute inflammatory stage gave better results than in the stage of complete necrosis. The pancreas is best exposed through a median incision in the epigastrium after division of the gastro-colic ligament. Drainage may be carried out by inserting a gauze strip or tube down to the surface of the pancreas, but it is preferable to open up the pancreatic tissue by blunt means and insert a drain into the gland. Any sloughs are to be removed with forceps. In seven of Koerte's cases

the pancreas was exposed by a lumbar incision with five deaths, the disease being already in the stage of suppuration and necrosis. In the after-treatment the occurrence of severe secondary hemorrhages of the wound cavity is to be considered, since six of the cases succumbed to this complication, while recovery followed in one instance in which the bleeding was arrested by tamponade.

**Iodin as the Sole Dressing for Operation Wounds.**—Mr. R. Alcock (*Brit. Med. Jour.*, Feb. 3, 1912) uses a 2 per cent. tincture of iodine with 90 per cent. methylated spirits not only in the preparation for operation, but as the sole dressing afterward. His objection to other forms of dressings is that they induce sweating, with liberation of microbes locked up in the sweat-glands. On the other hand, iodine destroys microbes on the surface as well as those in the very superficial layers, and furthermore locks up microorganisms in the sweat-glands by its hardening action on the skin. Besides it is very probable that tincture of iodine owes a great part of its therapeutic action to the hyperemia it induces, causing a phagocytosis and increased flow of blood to the part. After operation it is applied immediately, and again three hours afterwards, to render sterile any serum or blood which may have oozed out. The wound is painted daily for the next three days only (except in operations on the perineum or vulva), and on the ninth day when the stitches are removed. No cotton or gauze is applied.

**Malignant Disease of the Testicles.**—Mr. H. Morriston Davies (*Lancet*, Feb. 17, 1912), from a study of this subject and his own experience, presents the following summary: 1. All tumors of the testicle must be regarded as malignant. 2. The history of previous venereal disease, the association of the swelling of the testicle with an injury, the length of the history dating perhaps from childhood, must not be allowed to outweigh clinical evidence. 3. Always suspect a tumor of the testicle when there is an oval swelling which is not translucent and comparatively painless. 4. When the tumor is in addition soft or elastic, and the surface shows slight lobulations, regard the suspicions as confirmed. 5. Increased pulsation of the cord is in favor of tumor, but is not pathognomonic. 6. A solid tumor may be so elastic as to give the feel of a fluid swelling. 7. The aberrant clinical manifestations of a testicular neoplasm must be constantly borne in mind. 8. If the diagnosis is uncertain and the possibility of a growth is entertained the tumor must be explored. Should the tumor be syphilitic, no harm will have been done; if tubercular or a hematoma, operation is the correct treatment. 9. When the diagnosis of tumor is confirmed the complete radical operation, consisting of removal of testicle, cord, lymphatics, and surrounding fascia, and of the lymphatic glands in the region of the aorta and vena cava, must be done, unless the lumbar glands are extensively involved, or there are evidences of metastases elsewhere.

**Surgery of Abdominal Injuries.**—Professor Riedel (*Deut. med. Wochensch.*, No. 2, 1912) summarizes the results of his clinical observations in the following conclusions: 1. The most reliable sign of an injury of one of the abdominal organs is rigidity of the abdominal wall. 2. This is produced by the escape of gastric or intestinal contents or blood into the peritoneal cavity. 3. The more rapid and abundant this influx the more rapid the occurrence of rigidity. 4. Exceptionally it may be produced by trauma of the abdominal wall at circumscribed places or by simple contracture of the intestine. 5. Occasionally intestinal injuries are not followed by this symptom. 6. Rigidity of the abdominal wall when associated with a rapid, small pulse, a pallid, drawn face, and vomiting is indicative of profuse hemorrhage from the liver, spleen, pancreas, mesenteric arteries, etc. Under these circumstances the patient should be operated upon if possible within a few hours after the injury, in order to arrest the bleeding. 7. Rupture of the stomach rapidly leads to rigidity; rupture of the intestine more slowly, while a wound of the intestine may become sealed for the time by contraction. Such closure, however, is not to be depended upon even in small wounds. The comparatively late occurrence of peritonitis after intestinal rupture in some cases may possibly be due to the fact that intestinal micro-organisms require up to six hours to thrive in the peritoneal cavity. 8. Patients with ruptures of the gastro-intestinal tract should be operated upon if possible within the first six hours and at the latest within twelve hours after the injury, though occasionally recovery follows after a longer period. 9. The injured should be transported at once to a hospital equipped for the performance of major operations and not to their homes or to small hospitals. 10. Separation of the mesentery from the intestine, tears of the serous and muscular coats, or undermining of the mucosa may lead after a time to gangrene of the gut and the formation of fecal abscess or kinks or strictures. 11. In the vicinity of an intestinal segment deprived of its nutrition, the omentum and healthy intestinal coils become adherent to one another, the endothelium undergoes changes, the stomata disappear, and the absorptive power of the peritoneum ceases. This also occurs if the intestine is only severely contused but not gangrenous, the hemorrhagic effusion becoming purulent, but not leading to the formation of fecal abscess. 12. Hemorrhage from the lacerated liver is best arrested by suturing the omentum into the wound. The spleen, if injured, should be totally extirpated, even though occasionally disturbances have been observed after this radical procedure. 13. Renal ruptures are to be always treated conservatively, but in case the patient is rapidly succumbing to hemorrhage, extirpation of the affected kidney, which is often lacerated in several places, should not be postponed. 14. Contusions of the abdomen of moderate degree which do not lead to lesions of the intra-abdominal organs are sometimes rapidly followed by tympanites. 15. Slight injuries of the abdomen may produce severe symptoms (vomiting, rapid small pulse, drawn

face), which are comprised under the name of shock; on the other hand, extensive injuries of the abdominal viscera, especially the intestine, may cause at first very insignificant disturbances; the former, however, diminish and the latter increase in intensity. If we wait to make a correct diagnosis we may miss the proper time of treatment. 16. Slight contusions of the abdomen in rare instances lead to permanent damage to health by the formation of adhesions, kinking of the intestine, etc. Complaints on the part of injured persons extending over a long time are usually unfounded if the patient does not remain thin and sickly. 17. Subcutaneous ruptures of healthy abdominal muscles are quite rare. 18. Infected wounds penetrating down to the peritoneum are comparatively frequent; their treatment is usually very difficult, because pus is apt to spread between the different muscular layers and may lead to peritoneal infection. The latter can be prevented only by widely opening up and exposing the pus focus.

**Movable Cecum.**—Dr. C. A. Roeder (*N. Y. Med. Jour.*, Jan. 20, 1912) has fixed the cecum in six cases, all in women in whom the appendix had been previously removed. The patients were completely relieved of their previous symptoms. From his observations he concludes: 1. A movable cecum may be productive of symptoms resembling chronic appendicitis. 2. A high cecum may be a movable cecum producing symptoms. 3. On finding only a kinked appendix and a pronounced anterior ileocecal fold, look for a prolapsing cecum and a Lane kink. 4. The type of constipation produced by a prolapsed cecum may be due to traction on and narrowing of the ileocecal valve. 5. Some cases of pylorospasm may be due to narrowing of the ileocecal valve by traction of the cecum. 6. Wilm's cecopexy, Murphy's sigmoidopexy, Lane's ablation and anastomoses, all efforts to relieve stasis, show a variety of opinions on surgery to remedy functional conditions of the colon and indicate the necessity for further study.

**A New Method of Closure of the Pylorus.**—In cases of duodenal ulcer treated by gastroenterostomy it is necessary to occlude the pylorus in order to assure complete healing. In place of the ordinary methods Professor Wilms (*Deut. med. Wochensch.*, No. 3, 1912) has recently resorted to a new procedure which consists in circular constriction of the pylorus by means of strips of fascia taken from the anterior surface of rectus abdominis. These are secured by a knot or by sutures, so that the pylorus is completely occluded. The presence of these fascial bands leads to the formation of fibrous adhesions which form a constricting ring. In two cases in which this method was employed all the stomach contents passed through the gastroenterostomy opening and none through the pylorus, as shown by Roentgen examination. The technic of operation is greatly simplified, and the time required much shortened. It is probable that fascial bands can be employed with advantage for other purposes, as for example, for occluding the intestine after entero-anastomosis or for fixation of prolapsed organs.

**Indications for Renal Decapsulation.**—Dr. Lehmann (*Munch. med. Wochens.*, No. 6, 1912) believes that while Edebohl's theory as to the mode of action of renal decapsulation is based upon false premises, the operation is fully justified in certain conditions. Thus, for instance, it may prove of benefit in chronic nephritis by improving the general condition, even though the nephritic process is not permanently influenced. Decapsulation is also indicated in so-called nephralgias and angioneurotic renal hemorrhages. It is, moreover, a real life-saving measure in most forms of marked oliguria and anuria, especially in uremia accompanying acute nephritis. On the other hand, the operation is indicated in the uremia of chronic nephritis only when there is present an acute exacerbation and the kidneys are still functioning. In purulent inflammations of the kidney decapsulation may now and then be combined with drainage of the renal pelvis, unless nephrotomy is necessary.

**Traumatic Rupture of the Kidney.**—Dr. F. Michelson (*Archiv f. klin. Chir.*, Bd. 96, Hft. 2-3) gives the results in 30 cases observed in the surgical division of the City Hospital of Riga. From his experience he concludes that rupture of the kidney, unless in the presence of primary dangerous hemorrhage, is always to be treated expectantly, with strict rest in bed and application of a firm compress to the lumbar region. Of the cases treated by this plan only 10 per cent. died, and these had sustained other severe injuries to which death was also attributable. Hematuria itself rarely constitutes an indication for surgical intervention. If anuria occurs immediate operation is contraindicated. Simultaneous laceration of the peritoneum without injury of any of the intraperitoneal organs does not demand operative interferences per se. Catheterization of the bladder or of the ureters is only justified when there is a strong indication for its use. On the other hand, infection of a ruptured kidney requires prompt surgical intervention, the character of which depends upon the general condition of the patient.

**Operative Treatment of Strangulated Gangrenous Hernia.**—In the first surgical division of the City Hospital at Friedrichshain, Berlin, 81 cases of intestinal gangrene have been observed during a period of seven years, as reported by Dr. K. Berkofsky (*Deut. Ztschr. f. Chir.*, Bd. 109, Hft. 1-2). Among these there were 61 cases of incarcerated hernia and 20 of strangulation, volvulus, and the like. Primary intestinal resection is regarded by the author as the method of choice, being employed in most instances, especially in gangrene of the small intestine. The Murphy button was used almost invariably for anastomosis, being passed per vias naturales in most cases fourteen days after resection without any disturbance. The author makes no attempt to remove accumulated fecal matter from the bowel during the laparotomy on account of the risk of infection and the loss of time, and has never found that allowing it to remain is attended with any risk.

**Partial Thyroidectomy.**—Dr. T. P. Dunhill (*Lancet*, Feb. 17, 1912) prefers operating under local anesthesia, because patients are safe, distress is negligible, the recurrent laryngeal nerve may be guarded, and post-operative vomiting does not occur. He uses 7 oz. of 2 to 1,000 novocain, well infiltrating all the front of the neck. In regard to the question as to how much gland tissue has to be removed he says: "We have to remove enough to cure the disease, and we must leave enough for physiological purposes, and all the judgment and experience which one has are called for. In young patients, and those not very bad, the larger lobe should be enough, with any mid-lobe or isthmus. In older people, and those in whom the disease is very bad, the removal of one lobe will practically not do any good at all; one lobe and half the other must be removed. If the gland has been big and active, even then the remaining portion may be too large. One has to remember that more can always be removed, but it cannot be put back again easily. One must remove enough, but one must never be hustled into removing too much in order to make a "complete job" at once. Although I now rarely have to operate more than once, it will occasionally happen that more has to be removed in order to completely cure the patient, and in three cases I have operated three times."

**Seminal Vesiculotomy.**—In an article on "Sexual Disorders in the Male Clinically Considered" Dr. Eugene Fuller (*Med. Record*, Jan. 27, 1912) remarks that seminal vesiculotomy has proved itself at his hands to be a most satisfactory and radical operation in dealing with very severe and advanced lesions, for the cure of which the more palliative non-operative treatment of stripping and massage is not adapted. He feels warranted in saying this because of his wide experience with the procedure, having to date operated upon 224 cases without any mortality. In 95 per cent. of these cases the results have been satisfactory. In the small minority of cases they have not been bad but negative, that is, the operation has not accomplished enough to have made it worth while. In most of these latter it has been subsequently discovered that some unrecognized dyscrasia coexisted sufficient to account for the negative results. Although the profession has shown much interest in this operation, comparatively few have made a trial of it. The reason for this is because the operation is in great measure performed under the guidance of the sense of touch, rather than that of sight, and very few surgeons have trained their sense of touch sufficiently to allow their trusting to its guidance in the performance of seminal vesiculotomy, or in fact of any other operation.

**Regional (Local) Anesthesia.**—Dr. L. Eloesser (*Calif. S. Jour. Med.*, March, 1912) is strongly impressed with the advantages of local anesthesia. He believes that extensive operations involving the mouth, the tongue, the jaws and the lips in mentally normal adult patients should be performed under regional anesthesia. The hand and foot may be

easily and simply anesthetized; operations on these members should be performed under regional anesthesia. The skin is easily and simply grafted under regional anesthesia, which is the anesthesia of choice. Many extensive operations on the chest, abdomen and extremities may be performed under this method. Injection of the intercostal nerves with osmic acid or similar substances may be of use in certain cases of inoperable cancer of the breast. The trial of local anesthesia in reducing deformity is urged in certain cases of fracture; this may prove especially valuable to the general practitioner. Novocain is the drug of choice; it should supplant cocain in regional anesthesia. The infiltration anesthesia of Schleich is to be abandoned as entirely inadequate in the great majority of cases; for it is to be substituted regional anesthesia as developed by Cushing, Crile, Hackenbruch, Matas and especially Braun. Local anesthesia should not be forced upon unwilling patients; its use should not be tried in unsuitable cases; its limitations should be strictly observed.

## Book Notices

### BROWN'S ORAL SURGERY.

THE SURGERY OF ORAL DISEASES AND MALFORMATIONS. THEIR DIAGNOSIS AND TREATMENT. By George V. I. Brown, D.D.S., M.D., Oral Surgeon to St. Mary's Hospital and to the Children's Free Hospital, Milwaukee; Professor of Oral Surgery, Southern Dental College, Atlanta, Ga. Octavo, 740 pages, with 359 engravings and 21 plates. Cloth, \$6.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

"The region embraced in the title of this work is the scene of many diverse and important operations, such as those for hare-lip, cleft-palate, and the agonizing facial neuralgias. As the roof of the mouth is the floor of the nose, deformities of the upper air passages can often be removed by a very simple widening of the upper jaw. The author has displayed great ingenuity and resourcefulness in devising new or improved operations, and these are given in detail with liberal illustrations of their successive steps. Dr. Brown also appreciates the importance of facial appearance, and has shaped his operations to accomplish æsthetic as well as practical results. His serial pictures demonstrate a great advance in this particular over what was formerly thought to suffice. Most surgeons have operations in this region to perform, and to them, as well as to dentists, and to students of medicine and dentistry, this work can be recommended as presenting the whole subject in its latest form."

### CHEYNE AND BURGHARD'S SURGICAL TREATMENT, VOLUME I.

A MANUAL OF SURGICAL TREATMENT. By Sir W. Watson Cheyne, Bart., C.B., D.Sc., LL.D., F.R.C.S., F.R.S., Hon. Surgeon in Ordinary to

H. M. the King; Senior Surgeon to King's College Hospital, and F. F. Burghard, M.S. (Lond.), F.R.C.S., Surgeon to King's College Hospital, and Senior Surgeon to The Children's Hospital, Paddington Green, London. New (2nd) edition. Thoroughly revised and largely rewritten. In five volumes, containing about 3,000 pages and illustrated with about 900 engravings. Price, cloth, \$6.00, net, per volume. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

"This work will enrich every surgeon's library and increase his efficiency by supplying him with far fuller details of operations than is possible in general books or systems of surgery. The time and attention of readers are spared by the fact that the authors have presented only the procedures that in their vast experience have proved best, and they have thus been able to cover the whole field of surgical treatment in full detail, including the steps of operations. In writing these volumes the authors have endeavored to put themselves in the place of their readers, choosing the operation best suited to each case, and then presenting everything a surgeon might need to know, including the after-treatment. Their work was warmly appreciated in its original issue, and this new edition, thoroughly revised in text, and with no less than 900 engravings, will receive an equally wide welcome."

### HERTZLER ON TUMORS.

A TREATISE ON TUMORS. For the use of physicians and surgeons. By Arthur E. Hertzler, M.D., of Kansas City, Mo., Assistant Professor of Surgery in the University of Kansas. Octavo, 728 pages, with 538 illustrations and 8 plates. Cloth, \$7.00, net; half Persian morocco, gilt top, de luxe, \$9.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

"Approximately one-fourth of all surgical literature is devoted to tumors. This fact alone conveys some idea of the magnitude and importance of the subject, and should impress on the busy physician, surgeon and specialist the impossibility of even beginning to read this vast mass and the great difficulty of finding therein any particular information for which he may be in search. In the volume at hand, Dr. Hertzler has presented, in such proportion as his duties as teacher and consultant have shown to be most advisable, the experience of many years gained in the operating-room, the observations of laboratory study, and the information gathered from the literature. To make his volume one of maximum utility he has, in presenting the subject, kept in mind the application of both the scientific viewpoint and clinical observation. The practical aspects have received strong emphasis. The volume is one which brings the general practitioner and surgeon into co-operation. It is sumptuously illustrated with original engravings and plates."

# Monthly Index of Surgery and Gynecology

- Abdominal Pain, together with Some Aspects relating to Diagnosis (Jour.-Lanc., March, 1912). A. T. Mann, Minneapolis.
- After-treatment of Abdominal Operations (Ky. Med. Jour., March 15, 1912). L. S. McMurtry, Louisville.
- Appendicitis, Acute, an Analysis of 500 Consecutive Operations for (Brit. Med. Jour., Feb. 24, 1912). A. H. Burgess, Manchester.
- Atropin and Open Ether Administration (Brit. Med. Jour., Feb. 24, 1912). H. B. Gardner, London.
- Backward Displacements of the Uterus, Some Practical Considerations in the Treatment of (Pa. Med. Jour., March, 1912). X. O. Werder, Pittsburg.
- Bladder Tumors Treated by Fulguration (Am. Jour. of Urol., March, 1912). D. A. Sinclair, New York.
- Bone Lesions Accompanying Chronic Leg Ulcers (Bost. M. and S. Jour., March 14, 1912). W. P. Cones, Boston.
- Bone Transplantation and Osteoplasty in the Treatment of Pott's Disease of the Spine (N. Y. Med. Jour., March 9, 1912). F. H. Albee, New York.
- Cancer of the Prostate (Surg., Gyn. and Obst., March, 1912). R. C. Bryan, Richmond.
- Cancer of the Uterus, Results of the Treatment of, by the Actual Cautey. With a Practical Method for its Application (Jour. A. M. A., March 9, 1912). J. F. Percy, Galesburg, Ill.
- Cardiospasm. Its General Consideration (Surg., Gyn. and Obst. March, 1912). J. F. Erdmann, New York.
- Colon Bacillus, a Regulator of Population (Jour. A. M. A., March 2, 1912). R. T. Morris, New York.
- Creative Surgery (N. Y. Med. Jour., Feb. 24, 1912). R. Bellamy, N. Y.
- Cystitis: Its Causes and Its Treatment (Lancet, Feb. 24, 1912). D. Newman, Glasgow.
- Diagnosis of Intra-abdominal Conditions Presenting Acute Manifestations (N. Y. Med. Jour., March 2, 1912). N. Jacobson, Syracuse.
- Diaphragmatic Hernia, Diagnosis of (An. of Surg., March, 1912). H. Z. Giffin, Rochester, Minn.
- Duodenal Ulcer, the Surgical Aspect of (Canad. M. A. Jour., March, 1912). F. N. G. Starr, Toronto.
- Ectopic Gestation, Treatment of (Surg., Gyn. and Obst., March, 1912). E. B. Cragin, New York.
- End Results of Surgery in Neurasthenics and Neurasthenia (Bost. M. and S. Jour., Feb. 22, 1912). E. Reynolds, Boston.
- Ether as a Routine Anesthetic (Canad. Pract., March, 1912). S. Johnston, Toronto.
- Failure of Colon to Rotate (Med. Rec., March 2, 1912). C. H. Mayo, Rochester, Minn.
- Fate of the Appendix After Abscess Formation (Lancet, Feb. 10, 1912). A. P. D. Parker, Oxford.
- Fibrous Tuberculosis of the Peritoneum Involving Omentum, Intestines and Uterus (N. Y. Med. Jour., Feb. 24, 1912). C. L. Hall, Kansas City.
- Fractures, Operative Treatment of (W. Va. Med. Jour., March, 1912). J. E. Cannaday, Charleston, W. Va.
- Frequency of Surgical Lesions of the Kidney and Ureter as Estimated from Autopsy and Hospital Records (Jour. A. M. A., March 16, 1912). E. M. Stanton, Schenectady, N. Y.
- Gallstones Complicating Pregnancy and the Puerperium. Report of Six Cases (Charl. Med. Jour., March, 1912). J. Graham, Durham, N. C.
- Hemorrhoids and Chronic Constipation, an Operation for (Lancet, Feb. 3, 1912). C. A. Bucklin, New York.
- Hepatopexy and Hepatotomy (Jour. A. M. A., March 2, 1912). A. Werellus, Chicago.
- Imperforate Anus and Malformed Rectum, Cases of (Med. Rec., March 9, 1912). C. P. Farnsworth, Chamberlain, S. Dak.
- Importance of Proper Feeding after Cellotomy (Lanc.-Clin., March 2, 1912). J. H. Carstens, Detroit.
- Indications for and against Operative Treatment of Simple Fractures (An. of Surg., March, 1912). J. H. Gibbon, Philadelphia.
- Indigestion, So-called, Surgical Aspect of (Jour. Tenn. S. M. A., March, 1912). L. L. Sheddan, Knoxville, Tenn.
- Inflammation of the Endometrium and "Endometritis," Recent Views on (N. Y. Med. Jour., March 30, 1912). R. T. Frank, New York.
- Inguinal Operation for the Radical Cure of Femoral Hernia (Brit. Med. Jour., Feb. 24, 1912). C. A. Morton, Bristol.
- Injuries to the Spinal Cord and Treatment (Tex. S. Jour. Med., March, 1912). J. E. Thompson, Galveston.
- Intussusception in Children (Pa. Med. Jour., March, 1912). A. R. Matheny, Pittsburg.
- Iodine as the Sole Dressing for Operation Wounds (Brit. Med. Jour., Feb. 3, 1912). R. Alcock, Stoke-on-Trent.
- Ionic Surgery in Cancer of the Rectum. A Review of Fifteen Cases (N. Y. Med. Jour., March 30, 1912). G. B. Massey, Philadelphia.
- Joint Tuberculosis (Ill. Med. Jour., March, 1912). J. Ridlon, Chicago.
- Joint Tuberculosis, the Three Rules of Treatment in Adult (Jour. A. M. A., Feb. 24, 1912). L. W. Ely, Denver.
- Kidney Surgery, Some Experiences in (Ohio S. Med. Jour., March, 1912). C. A. Hamann, Cleveland.
- Leg Amputation from the Standpoint of Utility (Va. Med. Semi-Mo., March 8, 1912). L. A. Thompson.
- Limits of the Catheter in the Treatment of Chronic Enlargement of the Prostate Gland (Jour. Mo. S. M. A., March, 1912). C. W. Wallace, St. Joseph, Mo.
- Luxation of the Ulna Forward at the Wrist (Without Fracture) (An. of Surg., March, 1912). F. J. Cotton, W. J. Brickley, Boston.
- Lymphangioplasty (West. Med. Rev., March, 1912). G. Haslam, Fremont, Neb.
- Malignant Disease of the Testicle and the Treatment of it by Radical Operation (Lancet, Feb. 17, 1912). H. M. Davies, London.
- Management of the Opening in the Transverse Mesocolon in Completing Operation for Posterior Gastrojejunostomy (An. of Surg., March, 1912). W. J. Mayo, Rochester, Minn.
- Misleading Abdominal Symptoms (Am. Jour. of Surg., March, 1912). A. M. Crispin, New York.
- New Antiserum for Cancer. Clinical Accounts of Thirteen Cases Treated (Med. Rec., March 16, 1912). W. N. Berkeley, S. P. Beebe, W. M. Ford, New York.
- New Material (Duralumin) for Surgical Appliances (Brit. Med. Jour., Feb. 3, 1912). E. M. Little, London.
- Nitrous-Oxid-Oxygen Anesthesia (Jour. Mich. S. M. S., March, 1912). R. R. Smith, R. Maurits, Grand Rapids, Mich.
- Non-Suppurative Subphrenic Peritonitis Complicating Appendicitis (Surg., Gyn. and Obst., March, 1912). H. Neuhoof, New York.
- Office Anesthesia for Small Surgery; Nitrous Oxid and Air Self Administered (N. Y. Med. Jour., Feb. 24, 1912). A. E. Guedel, Indianapolis.
- Office Management of Rectal Diseases, Surgical and Non-Surgical (Jour. Mich. S. M. S. March, 1912). J. A. McVeigh, Detroit.
- Open Treatment of Fractures (Northw. Med., March, 1912). W. C. Woodward, Seattle, Wash.
- Orthopedic Treatment of Non-Tuberculous Chronic Joint Diseases (Chic. Med. Rec., March, 1912). J. Ridlon, Chicago.
- Osteomyelitis of the Long Bones (An. of Surg., March, 1912). J. Homans, Boston.
- Pelvic Deposits in the Diagnosis of Abdominal Cancer, the Importance of (Brit. Med. Jour., Feb. 3, 1912). G. G. Turner.
- Position as a Factor in Drainage of the Peritoneal Cavity (Jour. A. M. A., March 9, 1912). W. Coughlin, St. Louis.
- Postoperative Gastric Dilatation (N. Y. Med. Jour., March 2, 1912). T. C. Witherspoon, Butte, Mont.
- Postoperative Roentgenization in Cancer (Provid. Med. Jour., March, 1912). F. E. Peckham, Providence.
- Preparation of the Patient Before Operation (Am. Jour. Obst., March, 1912). H. Grad, New Orleans.
- Principles Underlying the Technic of Hollow Visceral Anastomosis, with Some Recent Methods (Col. Medic., March, 1912). C. E. Tennant, Denver.
- Prostatectomies, Twenty-four Consecutive (Old Dom. Jour. M. and S., March, 1912). L. T. Price, Richmond.
- Pyelitis of Gonorrheal Origin, with Report of Cases (Am. Jour. Dermat., March, 1912). N. E. Aronstam, Detroit.
- Radium in the Treatment of Sarcomata (Canad. Pract., March, 1912). W. H. B. Aikins, F. C. Harrison, Toronto.
- Relation of Renal Activity to Surgical Operations (Lanc.-Clin., Feb. 24, 1912). E. O. Smith, Cincinnati.
- Sarcoma of the Small Intestine (An. of Surg., March, 1912). J. Douglas, New York.
- Sarcoma of the Testicle (N. Y. Med. Jour., March 2, 1912). A. C. Stokes, Omaha.
- Simple Fractures, Treatment of; Some End Results (An. of Surg., March, 1912). J. M. Hitzrot, New York.
- Spinal Decompression; Reports of Seven Cases and Remarks on the Dangers of and Justification for Exploratory Operations (Jour. A. M. A., March 9, 1912). P. Bailey, C. A. Elsberg, New York.
- Surgical Indications in Mechanical Urinary Disturbances (Jour. Mo. S. M. A., March, 1912). F. W. Bailey, St. Louis.
- Technic and Remote Results of Vascular Anastomoses (Surg., Gyn. and Obst., March, 1912). A. Carrel, New York.
- Traumatism and Rupture of the Urethra and Traumatic Stricture (Denv. Med. Times, March, 1912). J. Lindahl, Denver.
- Tubercular Epididymitis; End-Results of 71 Cases (Bost. M. and S. Jour., March 14, 1912). J. D. Barney, Boston.
- Tuberculosis of the Alimentary Canal and Peritoneum (Ill. Med. Jour., March, 1912). J. B. Murphy, Chicago.
- Tuberculosis of the Bones and Joints, Pathology and Treatment of (Jour. A. M. A., Feb. 24, 1912). H. J. Stiles, Edinburgh, Scotland.
- Tuberculosis of the Mesenteric Gland in Children (Lancet, Feb. 17, 1912). E. M. Corner, London.
- Tuberculous Disease of the Bones and Joints. Present Position of Treatment in London (Lancet., Feb. 17, 1912). R. C. Elmslie, London.
- Tuberculous Epididymitis, End Results of 71 Cases (Bost. M. and S. Jour., March 14, 1912). J. D. Barney, Boston.
- Ultimate Results of the Conservative Surgery of the Ovaries (Surg., Gyn. and Obst., March, 1912). E. Reynolds, Boston.
- Ultra-Violet Ray, the Use of, in Diseases of the Genitourinary Tract (An. of Urol., March, 1912). J. R. Hayden, New York.
- Urinary Infection (Bost. M. and S. Jour., Feb. 22, 1912). B. Tenney, H. M. Chase, Boston.
- Value of Intrauterine Douches, Packing and Antiseptics in Treatment of Miscarriage; Study of 2,000 Cases (Bost. M. and S. Jour., March 7, 1912). E. B. Young, J. T. Williams, Boston.
- Ventral Hernia, Prevention and Treatment of (Jour.-Lanc., March 1, 1912). E. S. Judd, Rochester, Minn.
- Wright's Solution with Bier's Hyperemia in Infections of the Extremities (Jour. A. M. A., March 16, 1912). P. G. Skillern, Jr., Phila.



# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

MAY, 1912

No. 5

## Original Articles

### THE APPENDIX FROM A GYNECOLOGICAL VIEWPOINT.\*

By HENRY C. COE, M.D., New York.

Although I have discussed this subject in previous papers, it is one that never loses its interest for the abdominal surgeon, whether his work is confined to the lower quadrants or embraces the entire cavity. It is always profitable to compare one's recent with his earlier experience in order to see if he has advanced or retrograded, since in surgery (as in life) we cannot remain stationary. The temptation to retrospect grows with age, and when I recall the fact that Fitz's first paper on appendicitis did not appear until 1886 (five years after my graduation), that we never had our attention called to the appendix at the autopsy table here or abroad, and that Sands performed the first operation after diagnosing appendicitis, you will admit that I have lived long enough to see some advances in surgery.

Another interesting point: During my service in the Woman's Hospital (1882-3) in all the cases of abdominal section at which I assisted I never once saw the appendix at the time of operation, nor in the too frequent autopsies which followed (conducted by Prof. William H. Welch) was it examined or its condition noted in the exhaustive reports which he always wrote with his own hand. During the subsequent years, when I was pathologist to the Woman's Hospital and at the same time assistant to the late Dr. James B. Hunter, no one ever thought of looking for the appendix, least of all noting its relations to the pelvic organs.

I am unable to say who first called attention to appendicitis as a possible complication of tubo-ovarian disease, but I am under the impression that its importance occurred to several gynecologists about the same time (over twenty years ago), as several German articles appeared at occasional intervals, soon followed by many reports of cases

by American observers. So much for a brief retrospect.

My interest in the subject was early aroused, and as soon as I had an opportunity to operate extensively (that is, during the past fifteen years) I have made it a rule to note in every instance the condition of the appendix in opening all abdomens, and especially its relation to the pelvis, whether normal or abnormal. Without pretending to be able to throw any new light on such a familiar theme, I venture to reiterate, in the light of mature experience, the statements already made.

Its importance to the gynecologist is emphasized daily in the consulting room, when pain over the right lower quadrant means only one condition to the anxious patient, whose fears have perhaps been confirmed by the confident opinion of her physician that she has appendicitis and requires an early operation. The "speed mania" prevails in surgery as well as in travel by sea, land, and air, and sometimes with the same dire results. Hesitation on the part of the consultant, the expression of a desire to keep the patient under observation before giving a definite opinion, are too often interpreted as due to ignorance or timidity. I need not dwell on this point, as it is sufficiently familiar.

I pass over the normal anatomy of the appendix and the many variations in its position, length, etc. Every abdominal surgeon knows how often the normal appendix is found within the pelvic cavity (especially in cases of ptosis) and in direct contact with the adnexa, so that it would seem to be impossible that one should be inflamed without the other sharing in the process.

The relation of the normal appendix to the pregnant uterus is important, and I am sure that the right sided pain often noted during pregnancy bears a close relation to disturbance of the usual position of the cecum and appendix during that condition, as it nearly always disappears after delivery.

Actual inflammation of the gut is, of course, excluded. I have discussed elsewhere this serious complication of pregnancy and the puerperal state.

We ought to be tolerably familiar with the path-

\*Read before the Harvard Medical Society, April 27, 1912.



ology of appendicitis complicating pelvic affections, but in spite of the vast number of observations on the operating table there still remain several facts which have not been explained to the satisfaction of the clinician.

The attempt to refer every pain located in the pelvis or in the lower quadrants of the abdomen to some definite lesion is characteristic of modern gynecology and accounts for many unsuccessful operations, especially in neurotic subjects. The late Dr. William T. Bull used to console me in my early days, when I lamented my high mortality, by his cheerful philosophy: "The surgeon who has not lost many patients has not had many operations." Of course, that has all been changed, but the fact still remains that at the present day many explorative incisions have failed to reveal the existence of the appendicular or tubo-ovarian disease which we expected to find.

I have always held that slight impalpable intrapelvic and abdominal adhesions undoubtedly explained more or less well defined pains for which no palpable cause could be assigned, and have demonstrated this to my own satisfaction by operation and by the relief of the symptoms following separation of such adhesions without removal of any organs. It is surprising to note how often the tip of the appendix is caught in the pelvis, due to a localized peritonitis, where there has been no history of an acute attack and the right tube is merely occluded at its distal end (catarrhal salpingitis, perhaps of gonorrheal origin?).

Apropos of the well recognized complication of adhesion and disease of the appendix in connection with tubo-ovarian abscess, I would call attention to the fact that it is often impossible to determine the seat of the primary infection, although I believe that in the majority of these cases the appendix is secondarily affected. The finding of colon-bacilli in the contents of pus-tubes has been thought to indicate secondary infection of the latter.

We have had several interesting cases of tuberculosis of the appendix at Bellevue, with extension to the right tube. It is well known that adhesion of the appendix to an ovarian cyst may be the cause of infection in the cyst-contents, the colon bacilli doubtless traversing the walls of the gut and cyst, in the absence of a direct connection between the appendix and tumor by ulceration and perforation, a condition which has never been described, so far as I know.

Collections of pus occurring within the pelvis of appendicular origin are rarely differentiated, as the conditions are so complicated that it is difficult

to trace the primary lesion. With bilateral tubal disease the probability is that perforative appendicitis is secondary.

In such conditions I have even removed the appendix with the tubal sac and exudate before recognizing it. In one case I operated through the lateral incision for perforative appendicitis and found it complicated with (or complicating?) ruptured tubal gestation. Drainage, recovery and good health for six years.

In a recent case a typical primary appendicitis in a young girl was complicated with tubo-ovarian abscess on the left side (with cheesy contents) and a pyo-salpinx on the right. The specimens showed typical tuberculosis, confined to the adnexa. The right ovary (cystic) was resected and the patient made a good recovery and has menstruated twice without pain, though the ultimate prognosis is, of course, unfavorable.

The question naturally suggests itself: Since the appendix is either adherent at its tip, or is merged with the diseased adnexa in purulent disease of the latter, is it not fair to assume that there is some risk in leaving an appendix even if only the tip appeared to be thickened and nodular and there is no evidence of perforation?

Although only a few isolated cases have been reported (the most striking one by the late Dr. Pryor) in which death was traced to perforation of the appendix with resulting fatal peritonitis, I have always held that it was better to be on the safe side and to remove the suspected part. From that to routine appendectomy in all abdominal sections for pelvic disease was a natural step and one the practice of which I have never had occasion to regret.

While slow to decide offhand to do a primary appendectomy in the absence of definite symptoms, and unable to comprehend why some general surgeons noted for their prompt resort to the operation oppose the simple and safe procedure in the hands of the gynecologist, experience has shown that careful examination of appendices macroscopically normal often shows epithelial and connective tissue changes, constriction of the lumen, etc., which fully justify removal. Doubtless many normal appendices have been removed, but not so many as one would infer.

*Symptoms and Diagnosis.*—As stated before the most troublesome cases referred to the gynecologist are neurotics pure and simple, who will furnish any history that is desired. You know them well. They are not confined to the young women in the higher walks, as we often encounter them at Bellevue. Patients are brought in on the ambulance who

give a typical history of acute appendicitis or ruptured ectopic pregnancy, but on a careful examination under anesthesia, or after exploratory incision, are found to have slight tubo-ovarian trouble, a small ovarian cyst with localized peritonitis or even incomplete abortion (criminal?). To render the case more puzzling, the pulse, temperature and leucocytosis seem to favor the diagnosis. It is common fact that environment, the opinions of sympathizing friends (or physicians), and the fact that some of the patient's young friends had operations for appendicitis still further puzzle the consultant.

Our reputation may depend upon an opinion expressed upon a single examination in the office. How important then to obtain a careful history, to analyze the symptoms carefully, and especially to note the fact that dysmenorrhea, as well as more or less constant right sided pain, is present. The wisdom of repeated examinations (if necessary under anesthesia) is apparent. It is always mortifying to remove a normal appendix, especially when we have committed ourselves to a diagnosis. The lame explanation, "slight thickening," "catarrhal appendicitis" (whatever that may be), "adhesions," "constriction," etc., may satisfy the patient and her friends, but *not* one's own conscience. On the other hand, one may find marked disease of the right adnexa in an unmarried woman (above all tubercular) indicating their removal, yet we have promised not to disturb them and our hands are tied. The fixed idea among the laity and younger members of the profession that surgery is a universal panacea for ills of the flesh is doing a great deal of harm. How often must one reiterate the truth that recovery from an operation is *not* synonymous with cure! We expect the former, but the latter is too often purely a matter of conjecture. Of what avail is it to lose one's organs if the same symptoms persist?

Acute perforative appendicitis as a complication of pelvic affections is rare for the reason, already stated, that disease of the appendix is usually secondary to salpingo-oophoritis. Hence the gynecologist ordinarily encounters so-called "subacute" or "chronic" cases, in which there is a history of repeated attacks. It is often difficult to obtain such a history, the patient referring all her troubles to the last attack, while the condition found at operation clearly shows that it is of long standing. The history of gonorrheal (or septic) infection is often obscure; the patient (as we find at Bellevue) either forgets or conceals important facts. The presence of bilateral disease of the adnexa is commonly sup-

posed to point directly to previous infection. This is not always true, for we not infrequently enucleate from a mass of adhesions on the left side a fairly normal tube and ovary, while those on the right are hopelessly diseased.

Emphasis has been laid on the fact that intestinal symptoms are marked in the presence of appendicular complications, as supported by the history and high location of the pain above the so-called ovarian region, but the same phenomena may accompany omental and intestinal adhesions, while the appendix is found high up in the iliac fossa. One can, at the best, only *suspect* accompanying involvement of the appendix by the presence of pain and tension at or below McBurney's point, extending down into the pelvis and accompanied by an intrapelvic mass to the right of the uterus reaching upward above the pelvic brim.

Even here we may be at fault. In fact, I have usually found abdominal palpation of little use in these cases, since the appendix is drawn down into the pelvis and is inaccessible from above. At the best it is rather an inference than a certainty.

The differential diagnosis of acute appendicitis from pelvic disorders is interesting. From this category I exclude all lesions above the pelvic brim.

The modern practitioner is on the lookout for ectopic and appendix troubles, and I am happy to add that as regards my own students I am proud to say that they have not made many errors, especially with regard to the latter condition. It is a hopeful evidence of the practical value of medical education that doctors are alive to the importance of the early recognition of these two serious surgical emergencies.

The diagnosis is not always easy in the absence of a clear history (and in ectopic the exceptions are more numerous than the rules), and I have myself been not seldom led astray. I have usually inferred the presence of perforative appendix from a history of acute abdominal pain, at first diffuse, then localized, with vomiting, rise of temperature and local rigidity, even though the pulse was not notably accelerated. On the contrary, ruptured ectopic gestation (when a history can be obtained, which is not always possible in ambulance cases) is preceded by a history of irregular menstruation, localized pain from the outset, evidences of internal hemorrhage, low temperature, rapid and feeble pulse, and absence of rigidity over the right lower quadrant. A high leucocytosis and polymorphonuclear percentage point to appendicitis, though it is a curious fact that marked leucocytic increase may attend rupture of a tubal sac, dropping after-

ward to rise again with the secondary peritonitis. The co-existence of both conditions should be borne in mind, as in a case in which through the right rectus incision I removed both a suppurating appendix and a ruptured tubal sac, the symptoms all pointing to the former condition. Torsion of an ovarian cyst, less often of that of a pedunculated fibroid, is often accompanied by acute symptoms—local pain, tenderness, elevation of temperature, rapid pulse, even collapse, while peritonitis rapidly develops. I have mistaken this accident for acute appendicitis, and vice versa, especially when I had never examined the patient before. The cyst is circumscribed, fluctuating and can be palpated easily per vaginam (or bimanually, if it is sufficiently large), and usually presents distinct fluctuation, unless it is a dermoid.

Colitis is a condition often observed by the gynecologist, primary or in connection with pelvic disorders. The symptoms may quite overshadow those due to the latter. It goes without saying that one should never overlook medical diseases by allowing his attention to be focused on the uterus and adnexa.

I have omitted reports of illustrative cases in order to condense my remarks as much as possible.

I do not know that it is necessary to dwell upon the surgical side of this subject as it is too familiar. My own practice with regard to removal of the appendix whenever I open the abdomen is well known. I do it as a routine measure in every case, unless the condition of the patient is such as to forbid delay or the appendix is atrophied and harmless. I have been impelled to do this by the fact that it has been necessary for myself or other surgeons to operate subsequently for acute appendicitis—in one instance ten years after a hysterectomy for fibroid. If the appendix is adherent or diseased the indication seems to be clear. No bad result has followed in about 800 cases and I have never yet known a patient to make any objection; in fact now they often stipulate that it shall be removed. I cannot quite understand the attitude of some general surgeons to take exception to appendectomy during the course of an operation on the uterus or adnexa, when they are so ready to perform the primary operation on the slightest suspicion of trouble in this region. It may be a rebuke to the "progressive" tendency of gynecologists, to use a familiar political term.

In view of the admitted frequency of appendicular and right tubo-ovarian disease, I desire to call attention to the fact that the surgeon who operates for appendicitis by the usual incision should never

omit palpation of the adnexa. I do not wish to criticize my confreres, the general surgeons, but I have so often seen a successful appendix operation absolutely fail to relieve the patient's pain, which was really due to a diseased tube or ovary that was left behind, that it is my own habit to palpate the pelvis before looking for the appendix. Unexpected conditions are often found. Even the risk of incurring a suit for malpractice (as occurred in the case of a well-known surgeon) would never deter me from removing a diseased tube and ovary with the appendix. The possibility of co-existing disease must always be borne in mind.

It has been objected that the oblique or right rectus incision does not allow easy access to the pelvis. I have not found this to be the case, provided that the incision is extended sufficiently far downward. In fact, I had no difficulty while operating for right inguinal hernia in removing through the ordinary incision the appendix, a small fibroid, and a dermoid cyst of the left ovary, the size of a tennis ball.

#### SUMMARY.

The appendix possesses a peculiar interest for the gynecologist from the point of diagnosis quite as much as of treatment. Its frequent close relation to the right adnexa leads to concomitant disease of the organs, as a rule primarily in the pelvis. Pain in the right lower quadrant may be due to appendicitis, to tubo-ovarian disease per se, or to both. It is difficult to differentiate them except by a clear history of preceding pelvic or appendicular inflammation. In a typical case of combined inflammatory trouble, pain at or below McBurney's point may radiate into the pelvis. This pain is worse during menstruation and is unilateral. Abdominal palpation is usually negative, as the appendix is drawn down into the pelvis, where a mass will be felt at or below the right uterine cornua.

In an acute case with fluctuation and the evidences of suppuration, it is advisable to incise per vaginam and drain, if the abscess is easily accessible, deferring a radical operation. But with urgent symptoms pointing to the appendicular region, the right lateral incision may be made at once and both appendix and tubo-ovarian abscess removed.

If necessary, the left adnexa can be removed through the same incision, though less easily than by the median. In the female through-and-through drainage per vaginam offers special advantages. In every operation for appendicitis in women, the condition of the right tube and ovary should be ascertained, if this can be done without risk of disturbing protective adhesions, especially when the ap-

pendix is adherent within the pelvis. The appendix should be examined in every case of abdominal section, when it is accessible, and should be removed unless it is atrophied or the condition of the patient forbids it.

8 W. 76th street.

### SOME OBSERVATIONS ON THE VAGINAL REMOVAL OF SUBMUCOUS FIBROIDS.

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A very essential preliminary to this vaginal operation is the making of an inverted T-shaped incision in the anterior fornix by the aid of which the bladder is completely separated from the anterior wall of the uterus and from the anterior vaginal wall. This permits of displacement, by an introduced speculum, of the bladder and the

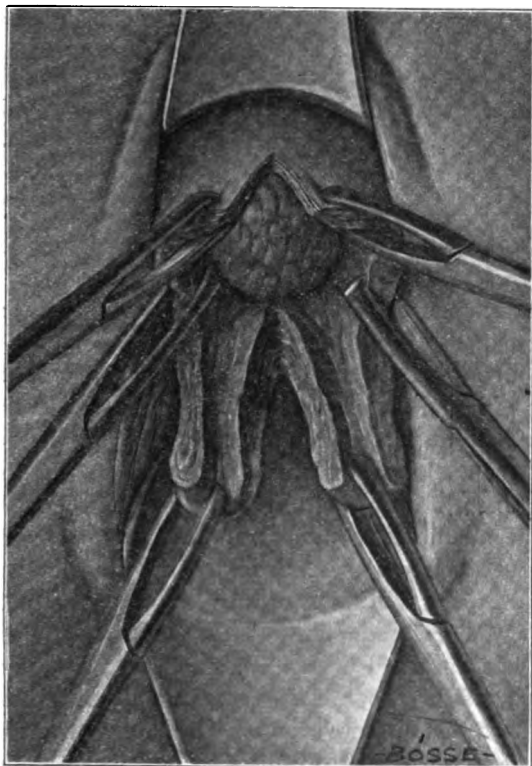


FIG. 1.

lowest ends of the ureters from the immediate field of operation and from danger and injury and gives, when the transverse part of the T-shaped incision is continued completely around the cervix, a very large space through which the subsequent operation may be carried out.

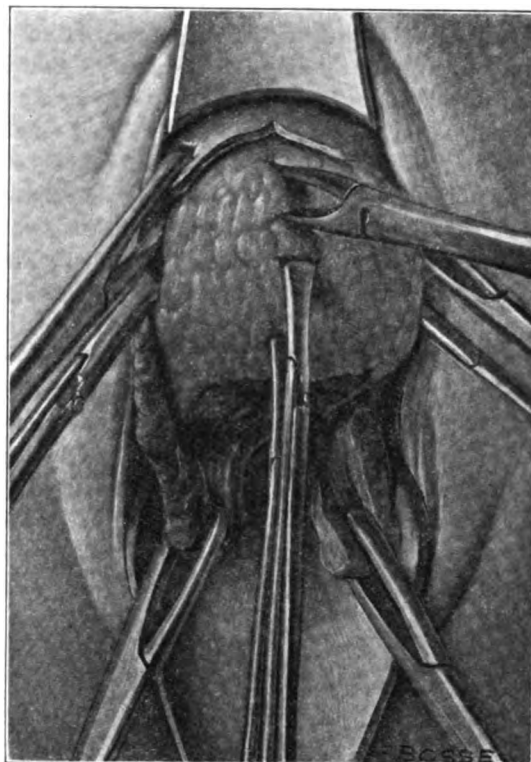


FIG. 2.

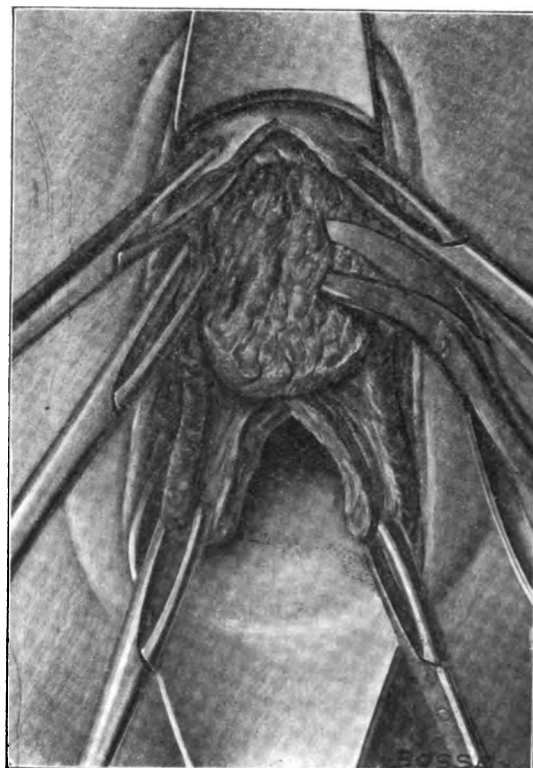


FIG. 3.

This inverted T-shaped incision, combined with the longitudinal splitting of the uterus from the cervix upward, including, if necessary, splitting of both the anterior and posterior walls, is a very ready means of approaching and attacking smaller or larger fibroids of the uterus, especially submucous fibroids. By it the tumor may be removed without complete hemisection of the uterus, which may be sewed together again with quite the same certainty of union that is expected and obtained after either abdominal or vaginal Cesarean section.

Splitting of the uterus is a very valuable and ready aid to its complete removal by the vaginal route. It permits of the delivery of either half of the organ in succession into the vagina, the other being temporarily pushed back into the peritoneal cavity. The uterus when split in two in the median line bleeds very little. Forceps or volsella applied

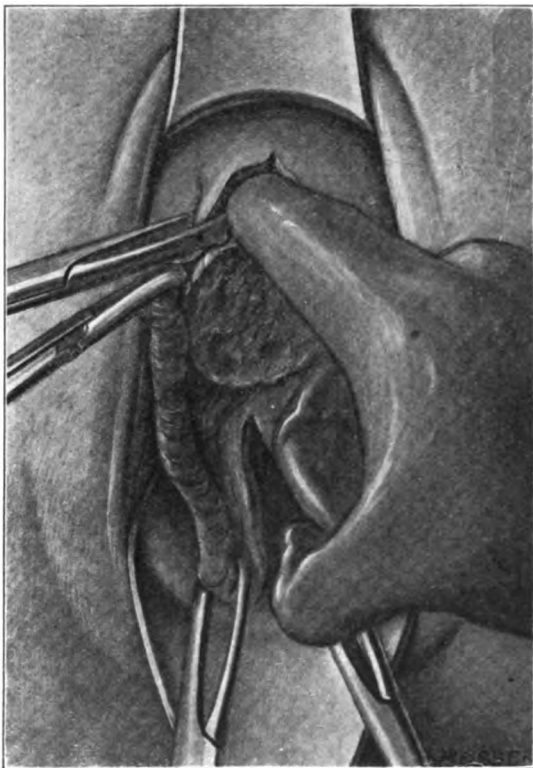


FIG. 4.

to the vaginally delivered half of the uterine structure from the fundus to the cervix permit of ligation of the broad ligament or of the ready application of clamps from above downwards or from below upwards. In this way either the uterus alone may be removed or the uterus together with the adnexa and, with any desired area of the broad ligament in its upper two-thirds.

If in the removal of large fibroids by this method the uterus must be completely divided, or if morcellation is practiced, or if after removal of

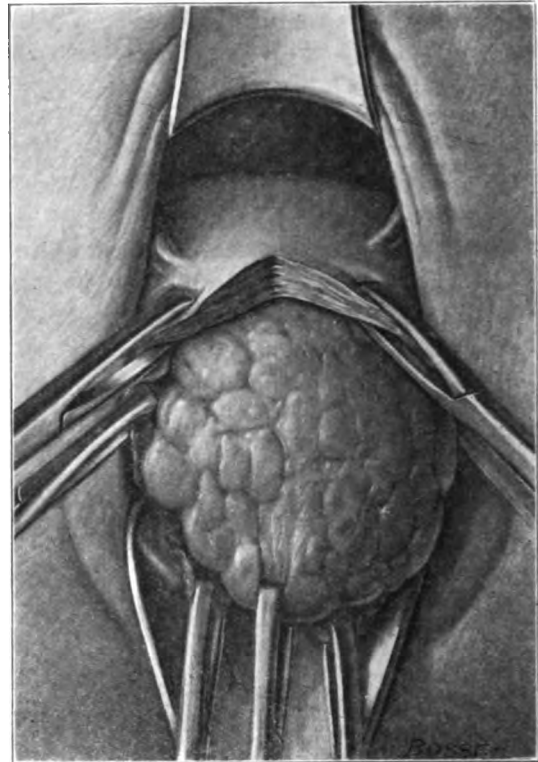


FIG. 5.

the tumor with much uterine tissue a useless organ remains, then there are left two halves of a uterus composed mainly of that area closely attached to the broad ligament.

Figure 1 shows the early stages of the operation, with the bladder held away from the field of operation, and the uterus held by a number of volsella; the posterior wall of the cervix has been split up to the internal os; above is seen the lower end of a submucous fibroid tumor.

Figure 2 shows the splitting of the anterior wall of the uterus continued upward for a considerable extent. The lateral borders of the incised uterus have been grasped by volsella and the tumor itself by successively applied forceps which pull it more and more down into view. The finger is introduced between the fibroid and the surrounding uterus, and blunt dissection between the two is carried on to the greatest possible extent. The tumor mass is continually diminished in size by the excision of small or large pieces practiced with the long-curved scissors, and at the same time if it is seen that the uterus cannot be saved, or if there is no desire to preserve it, or if it is too large to be of any use, the lateral margins of the incised uterus

are cut away and further exposure of the field is obtained in this fashion.

In figure 3 these two steps are illustrated in the actual process of the operation. When the tumor has been diminished to the greatest possible extent, still higher areas of the uterus are grasped. The



FIG. 6.

longitudinal incision in the wall is still further increased, and by still further attempts at blunt dissection considerable separation between the uterus and the tumor is obtained. Finally, as shown in figure 4, the fundus uteri is reached, the dissecting finger is passed down between the sub-mucous fibroid and the posterior uterine wall, and the tumor is almost ready to be entirely extracted.

If we picture figure 5 with the tumor removed we are left with a uterus, the anterior wall of which has been incised from the cervix up to the fundus, and the posterior wall up to the internal os. If there has been no great removal of or injury to the uterine tissue along the lateral wall of the longitudinal incision, it will be readily seen that the two halves can be sewn together and a well functioning uterus can be obtained.

If, as stated above, too much of this tissue has been removed, or if the uterus is too large to be retained, or if there is no desire for its retention, the incision is continued from above downwards or

from below upward along the entire posterior uterine wall and two uterine halves result. Then the one half is pushed back into the peritoneal cavity, while the other is pulled out into the vagina and before the vulva.

Figure 6 shows how easy it now is to separate this delivered half of the uterus from its attachment to the broad ligament, with or without the tube and ovary, by ligating from above downward or from below upward or by applying clamps in these two directions.

Hemisection of the uterus thus makes morcellement a more simple procedure and renders vaginal hysterectomy a most valuable means of removing a fibroid, provided the uterus is not too large, and the tumors are not multiple and do not extend too far up in the pelvis.

### CIRCUMCISION IN GIRLS.

By ROBERT T. MORRIS, M.D.,

*Professor of Surgery in the New York Post Graduate Medical School.*

Nature seems to have rather definite plans relating to the development of species in the organic world. Development is limited and when certain stages have been reached decadence begins. In plant life when a flower of a certain species is car-

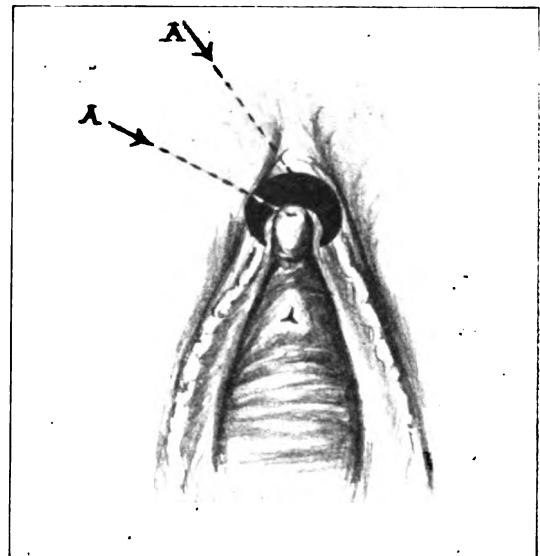


FIG. 1.

ried to the highest stage of development agreeable to nature, there is a tendency for doubling to occur. Degeneration of sexual organs follows and the flower loses its capacity to continue propagation of its kind.

In the human species the degree of development allowed by nature seems to be reached at different



stages with different races before decadence of sexual apparatus begins and gives indication that nature cares to go no farther, or little farther with members of that particular family.

One of the stigmata of decadence consists in lack of full development of the glans of the clitoris; normal cleavage does not take place between clitoris and prepuce and the prepuce remains adherent. This condition is apt to be found in cases of incomplete development of the mammary glands and of other parts of the sexual apparatus. The adherent prepuce may or may not be of consequence. The majority of women probably never know whether the prepuce is adherent or not. In some cases, however, girls suffer from preputial adhesions in the same way that boys suffer. Girls apparently require circumcision as often as boys do and for the same general reasons.

In any given case in which the physician decides that an irritable prepuce causes local or reflex disturbances in a child, calling for attention, simple separation of the prepuce from adhesions does not

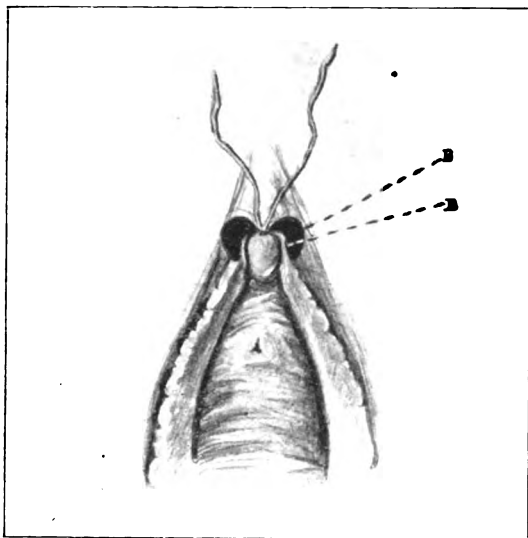


FIG. 2.

suffice. Re-adhesion is apt to occur, and usually does occur, sometimes with the effect of causing more disturbance than was originally present. It is best to give the patient a general anesthetic and perform circumcision, taking off a large fold of mucous membrane as shown in Fig. 1. The margins A A are then united with a suture. The next step consists in uniting margins BB with sutures. If the wound is then dusted with aristol and a compression pad applied for a few hours, with a T bandage to stop oozing, very little further treatment is needed aside from the requirements of ordinary neatness, bathing with boric acid solution

until the sutures have become absorbed. Fig. 3 shows the completed operation.

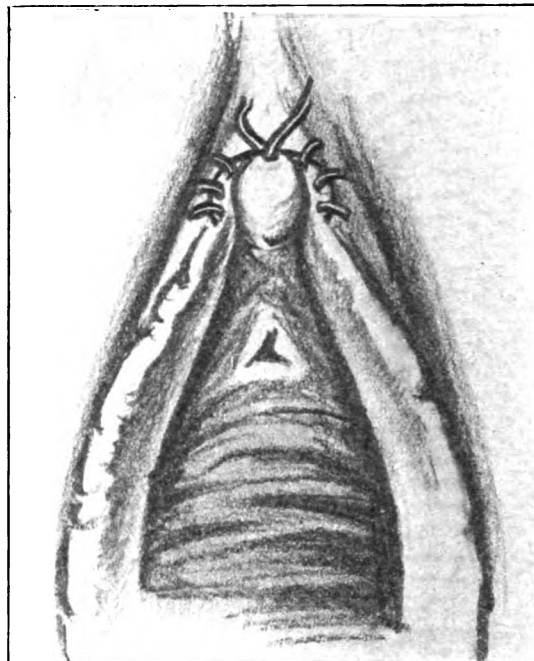


FIG. 3.

This operation is one which belongs essentially to the field of the woman physician.

### **THE SINGLE STITCH PERINEORRHAPHY.**

By RALPH WALDO, M.D., New York.

Lacerations of the recto-vaginal septum due to parturition or other violence, as injuries from falling on pointed objects and expulsion of tumors, have been recognized for a very long time, but I am unable to find mention of operations for their repair before the time of Ambroise Paré. Since then many able surgeons have devised and successfully performed operations for this most serious condition, and not a few of them have given what they believed to be good anatomical reasons for the disagreeable symptoms produced by lacerations of the perineum. Without going into detail it is sufficient to state that the explanation advanced by careful observers regarding the well-recognized symptoms have been and are still at variance, so much so that it is safe to say that the object of the remote operation is not simply to stitch together parts that have been ruptured, but also the cure of the condition or conditions that have as a cause a partial or complete rupture of the recto-vaginal septum.

At this point, without going into an elaborate description of the anatomy and physiology of the



recto-vaginal septum, it is well to call attention to a few cardinal points.

1. It gives support to the anterior wall of the rectum and the posterior wall of the vagina.
2. Indirectly it supports the anterior wall of the vagina, due to the fact that the anterior and posterior walls lie in contact with each other, and the lower part of the recto-vaginal septum is held forward by the levator ani muscle.
3. It does not support the uterus. If it did, the more extensive the rupture the more complete

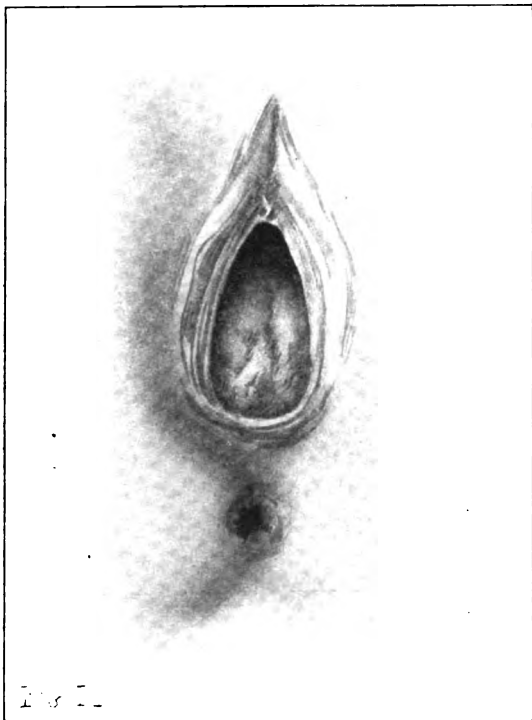


FIG. 1.

would be the prolapse. The clinical fact remains that with complete rupture so that fecal incontinence exists, it is very seldom that we have descensus even in the first degree.

For a long time there was a bitter controversy as to when the perineum should be operated upon. One side claimed that an operation should not be performed until the parts had thoroughly healed, another that it should be immediately done, and still another that it should never be resorted to excepting where the rectum was injured and incontinence of feces existed. At present I know of no competent observer who does not advise immediate operation, except in very rare instances where the woman is in such a weak condition that her life would be jeopardized by the procedure. Still large numbers of women continue to present themselves who require operations on the recto-vaginal sep-

tum, the laceration having existed for months or years.

As to the technic of the immediate operation there is little question, except as regards the suture material. One uses silver wire, another silk, another silkworm gut, and another catgut. I employ the last-named, and use as many sutures as are required to hold the parts together. In a very large percentage of cases primary union takes place and usually there is no new rupture at subsequent labors.

A few months or years after laceration of the recto-vaginal septum, where the muscular fibers have separated, although the skin may not be involved, you will find, depending upon the extent of the tear, incontinence of feces or rectocele. Later there may or may not be cystocele, and descensus uteri in either the first, second or third degrees, with all of the accompanying symptoms.

The operation under consideration is for the repair of the recto-vaginal septum when associated with rectocele and not for the direct relief of cystocele or descensus uteri, and furthermore it is not indicated where there is complete laceration of the perineal body with incontinence of feces. Here the indications are different and other methods are required.

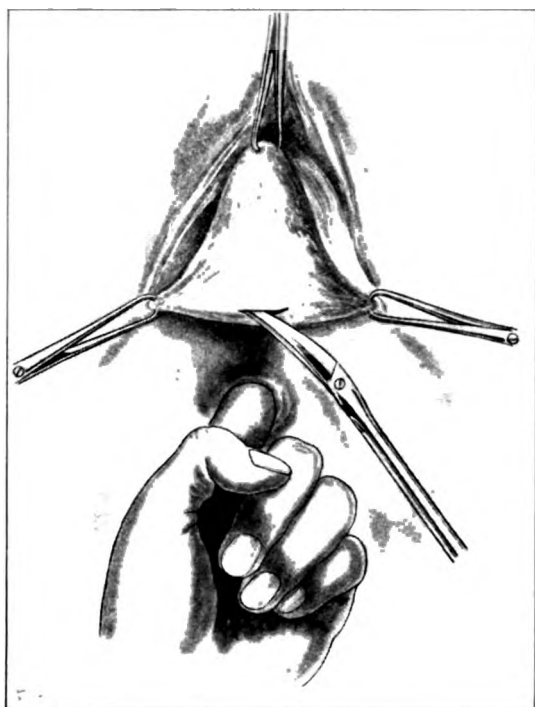
Forty-eight hours before operating the patient is given a cathartic. If it is given the night before it is not uncommon to have an evacuation of feces on the operating table. If the operation is to be performed in the morning a full enema of soap and water is given the night before. If it is to be done during the afternoon the enema is administered in the morning of the same day.

The night before operating the external genitals are shaved and a bichloride douche of 1:5000 is given.

At the time of the operation the patient is placed on her back with her feet in Edebohl's leg holders, so that there is a good light on the perineum. The external genitals and vagina are again thoroughly washed with green soap, a piece of gauze held with forceps being used and not a brush, which is apt to be either too soft or too hard, and in the latter case the parts are frequently abraded. Then an antiseptic douche, followed by one of sterile water, is given. The feet, legs and neighboring parts are covered with sterile towels, and everything is in readiness for the operation.

Sit with your face toward the perineum, the first assistant at your right, a nurse at your left, and a second assistant to handle the instruments that are placed on the table at your left, at the side

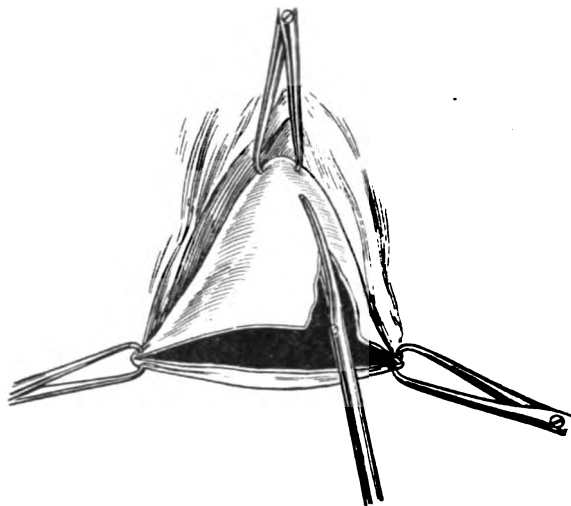
of the patient. Take three bullet forceps or tenacula, and with the first grasp the mucous membrane of the vagina a little above the most prominent part of the rectocele (Fig. 2), but at a point where you can easily draw it down to the integument in the median line posteriorly. If the rectocele is large be sure not to go nearer than three inches from the attachment of the vagina to the posterior wall of the cervix. This can easily be measured with the index finger. With the second pair of forceps grasp the mucosa to your right, at its junction with the integument, at a point abreast of the last caruncle or cicatrix that you

**FIG. 2.**

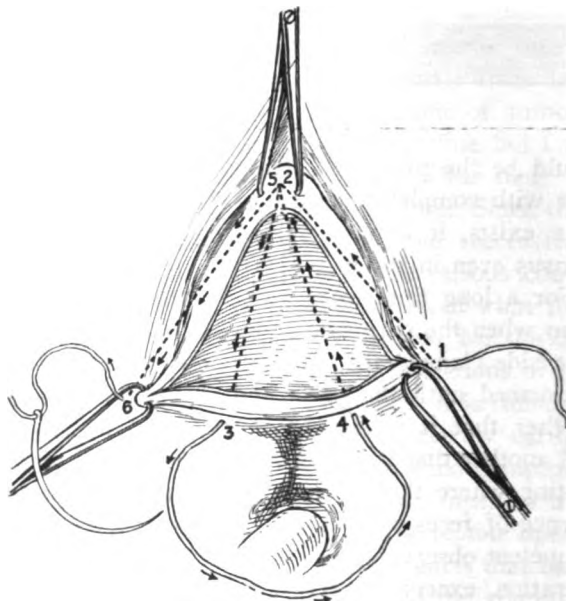
will find marking the point from which the rupture has extended. Place the third forceps at a corresponding point on the opposite side. It will be seen that a field is marked out similar to the one in Hegar's operation. The forceps attached in the vagina and those to your left are given to the nurse, and the one to the right to the first assistant. The assistant still has one hand free with which to sponge. The handle of the upper forceps passes over the clitoris, and slight traction is made in an upward direction, as well as from the median line on each of the lateral forceps (Fig. 2).

The left index is introduced into the rectum and kept there until the operation is completed. With long, blunt-pointed uterine scissors, curved on the flat, cut a small opening through the mucous membrane at its junction with the integument in the

median line posteriorly (Fig. 2). Turn the scissors in such manner that their concavity is toward the vagina, so as to be sure not to wound the

**FIG. 3.**

rectum, especially as you reach the upper portion of the surface to be denuded. Gradually push the scissors first to the right, every little while opening the blades and partially withdrawing them, closing and again advancing until the forceps are reached. Proceed the same to the left and then up the median line, opening the scissors wider and wider until the entire surface is separated from the underlying tissues, and still there is only a small opening where the instrument entered. In separating the mucosa be sure to extend well up into the angles at each

**FIG. 4.**

side of the vagina. If there are old cicatrices, occasionally you will find a few points that will have to be divided.

Remove the scissors and divide the mucous membrane at its line of attachment to the integument, between the two lower forceps (Fig. 3); then between the forceps at your right and those attached in the vagina, not running in a straight line, but curving with the convexity to your right. The mucosa should not be incised as far to the right as it has been separated from the underlying tissues, but should be allowed to project about a quarter of an inch. There may be one or two small blood-vessels to clamp. The flap which remains is attached to the left, between the forceps to the left



FIG. 5.

of those in the vagina. It may be slightly adherent at points to the underlying structures, from which it is easily separated with the left thumb, the index finger of this hand still remaining in the rectum. The flap is now removed, leaving a divided surface on the left side similar to the one on the right. It may be necessary to clamp a small vessel or two. Now you have a denuded surface extending along the junction between the mucous membrane and the integument in a curved line between the external forceps, and also in the curved lines up the vaginal walls on both sides, with the concavity of each line toward the median line. If there is free oozing pressure with a sponge will stop it.

A piece of No. 3 catgut chromicized, about two feet long, is threaded in a full curved Hagedorn needle, three inches long. It is introduced into the integument a quarter of an inch from the denuded

surface, and about an eighth of an inch above the forceps at your right, and is passed so as to include as much muscle as possible, keeping outside the denuded area and emerging just above the forceps in the vagina (Fig. 4). The needle again enters the mucosa at about an eighth of an inch from its exit, above the forceps in the vagina, and passes down, remaining buried in the tissues and coming out on the integument, a quarter of an inch from the denuded surface at a point (Fig. 4) midway between the posterior median line and the forceps to your left. Re-enter at a corresponding point to your right (Fig. 4) and pass up, keeping the needle buried to the point of exit just above the forceps in the vagina (Fig. 4). Again enter, but not at exactly the same point, and come down to a point on the integument a quarter of an inch from the denuded surface, and about one-eighth of an inch above the forceps at your left (Fig. 4).

The forceps and clamps are now removed and, as a rule, there will be no bleeding, but if there is, it will be necessary to use fine catgut ligatures. The suture is in place, and you will find that there is a loop posteriorly and two ends opposite the points where you have removed the two lower bullet forceps. Draw up the suture and tie the free ends (Fig. 5), but not too tightly, and the wound will be closed. In rare instances you may find it necessary to use a superficial stitch.

This stitch was first suggested to me by Dr. Clement Cleveland's figure of eight suture, of which it is a modification.

The patient is put to bed, without a pad on the perineum, for I know of no easier way to infect a perineum that has been operated upon than to include it and the anus in the same dressing. She is allowed to pass urine if she can and the bowels are kept fairly loose. Each time after the urine has been passed or there has been a movement from the bowels, the labia are separated and a mild antiseptic solution is poured over the parts.

This cures the rectocele and gives a good and permanent perineal body. The cardinal points of the operation are:

1. It runs well up the posterior vaginal wall and into the angles.
2. It removes the entire thickness of the mucosa down to the muscle and fascia.

While I do not consider time of the greatest importance in an operation, still, other things being equal, the shorter the period a patient is under the influence of an anesthetic the better. This procedure seldom requires more than ten minutes, and frequently less.

If only the superficial layers of the mucosa are removed (though primary union takes place), at the expiration of a few weeks or months it will stretch out, so that in many instances the condition is as bad as it was before the operation was done. It is correct to pass the needles deep into the tissues, so as to get the retracted ends of the ruptured muscle, but tissues that have not been denuded will not unite.

This operation was first described by me in the *International Journal of Surgery*, in May 1899, and since then I have performed it a large number of times.

When the laceration is extensive and the muscles are widely separated, a suture of plain catgut (No. 2) is so applied as to hold the muscles together in the middle of the denuded surface. This buried suture is the only essential change that has been made.

54 West Seventy-first Street.

### STERILITY:

#### Lesser Semen Defects and Minor Lesions of the Female Generative Tract as Causative Factors.

By WILLIAM H. CARY, M.D., Brooklyn, N. Y.

The preliminary gynecological examination frequently fails to disclose any lesion to which sterility can be positively attributed. Occasionally pathological conditions exist which are frankly prohibitive to fertility, but this evening I wish to invite your attention more particularly to the lesser abnormalities of the semen and the minor lesions of the female generative tract and the relation these defects bear to fertility. Often their responsibility must be determined by exclusion.

This subject is pertinent because a patient who suffers from acute or chronic pain seldom seeks relief primarily for sterility, for she has usually correctly attributed her barrenness to the condition which caused her symptoms. In an unhappily married woman sterility is generally voluntary. More often it is the woman believing herself healthy, with normal marital relations, who brings this problem to the physician. There is no other pelvic question which requires more minute knowledge of a special subject, together with a keen appreciation of what is normal, and a clear understanding of cause and effect, in order to offer an intelligent prognosis and to insure patient legitimate treatment, or to protect her from meddlesome measures.

Impregnation depends upon the following conditions: The male element must contain a normal

number of active spermatozoa suspended in a seminal fluid conducive to maintaining their life and activity, and must be delivered within the vagina. The ovaries must be competent to produce and liberate a healthy ovum. The female generative tract must sustain the life of the spermatozoon and the ovum, favor their ultimate union, and nourish the growth. In general the subject will be discussed in its physiological steps rather than by attempting to follow the usual didactic classifications.

#### SEMEN DEFECTS; DETERMINATION OF FECUNDATING ABILITY.

Until recently gynecologists were slow in recognizing how frequently the male is responsible for sterility. The fact is now being emphasized, and

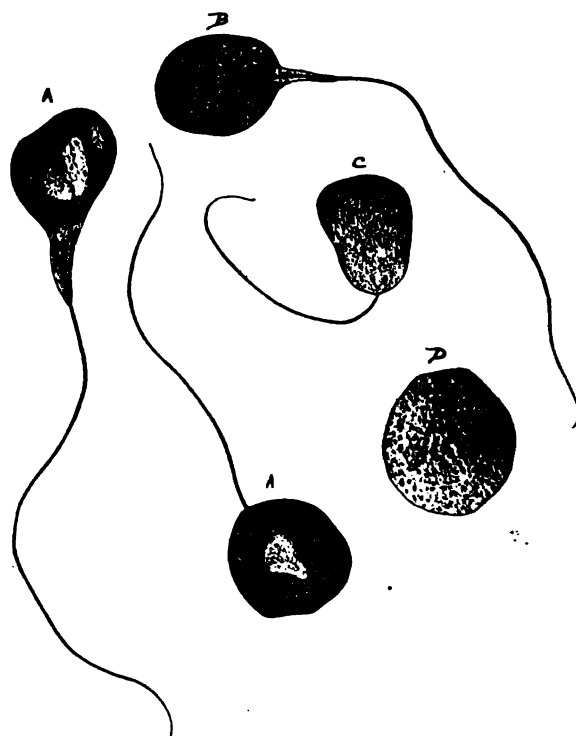


FIG. 1. Immature types. A, intermediate stages. B, large round head without nucleus. C, same type with blunt tail. D, Leucocyte for comparison of size. Found in defective specimens due sometimes to too great sexual activity.

a review of the literature shows that those best qualified to judge have placed the proportion of cases in which the male is responsible at surprisingly high figures; in foreign countries it ranges from the 70 per cent. of Vedeler to the 40 per cent. of Kehrer. In this country the consensus of opinion places the percentage at about 20 per cent. The high figure of Vedeler is due to the fact that it covers cases in which the husband is directly and indirectly responsible. It follows that if we would attain an ideal we are ready to affirm the opinion of J. Marion Sims, who, as early as 1869, questioned the surgeon's right to perform any operations upon

the female, or to institute any treatment whatever, with the view of the cure of sterility until the fertility of the male had been demonstrated. Cursory questioning will not determine this except in those rare cases classified under *impotentia coeundi*, more generally referred to as impotence.

The semen must be examined<sup>1</sup> and the conditions of its fecundating elements ascertained. The writer has made this subject, especially the minor semen defects, a matter of considerable study. This has confirmed the estimates of the frequency of male sterility. It has shown that the accurate estimation of the productiveness of the semen does

there is usually found a reduction in the number of spermatozoa (*oligospermia*).

The spermatozoa must be active or motile. Inactivity, dependent upon too great density of the semen, is corrected by the addition of saline and this may also be accomplished by dilution with the female secretions, and therefore does not necessarily involve sterility. If a fresh specimen, properly secured, shows inactivity or sluggish motion of the



FIG. 2. Headless and tailless forms found in great numbers in some defective specimens. A, probably a degenerating form.

not depend entirely upon determining the presence of spermatozoa, but also upon the recognition of the imperfect spermatozoon. It may not depend alone upon azoospermia (according to Kehrer in 21 per cent.), but the fertility of the semen may be greatly impaired by immaturity of the fecundating cells (Fig. 1). Such cases are not rare. Its fertility may also be much reduced by deformities of the spermatozoa (Fig. 2). Ordinarily no one variety of deformity is peculiar to a given specimen. Their occurrence is due either to a functional derangement of the testes or they may result from degeneration, occurring after the liberation of the spermatozoa from the testes. Accompanying either the change in form or immaturity

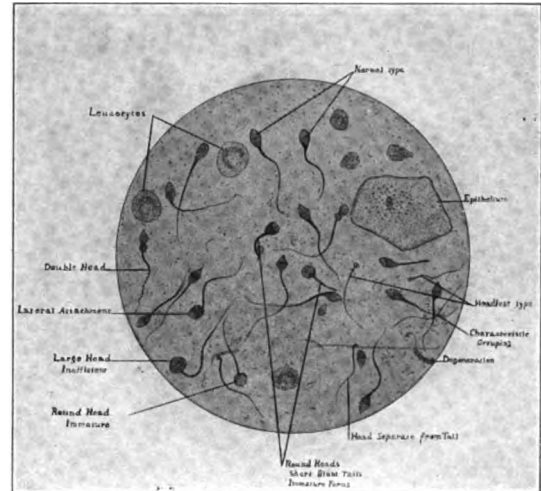


FIG. 3. Defective specimen sketched two hours after emission; well preserved. Thin and little sediment. Total number of spermatozoa reduced; one in three active. Deformed, immature and degenerate forms.

spermatozoa after the addition of warm saline, it is probably not capable of fertilizing the ovum. There must be not only motility, but the conditions of the liquor seminis and the spermatozoa must be such as to sustain their activity a few hours, assuring their ability to reach the Fallopian tube and to functionate. The specimen must be kept at a proper temperature, that of the body, and promptly reach the microscope and be examined from time to time to determine the persistence of activity.<sup>2</sup>

#### DEFORMITY OF THE VAGINA; PRELIMINARY STUDY OF ITS SECRETIONS.

We are now ready to consider the female receptacle of the semen—the vagina. Gross deformities, as imperforate hymen and atresia, will be passed by to call attention to the less noticeable condition of shortened vagina with relaxed outlet, sometimes associated with displacement of the uterus. The effect of this anatomical error is, of course, only relative because we must consider the significant fact that nature has produced thousands of spermatozoa that one may survive to perform its entire function. This anatomical condi-

<sup>1</sup> Methods of examination are taken up in detail by me in another paper ready for publication.

<sup>2</sup> I have in summer weather, noted continuance of activity of the spermatozoa twenty hours after securing specimen. No special measures were taken to preserve heat.

tion is less favorable than the normal, however, for most of the seminal discharge is immediately expelled. This is especially true if the upright position be assumed or cleansing be attempted immediately after coitus. In these cases pregnancy sometimes follows if steps be taken to favor the retention of the semen in the vaginal vault.

Pathological conditions of the vaginal secretion undoubtedly play some role in sterility due to their

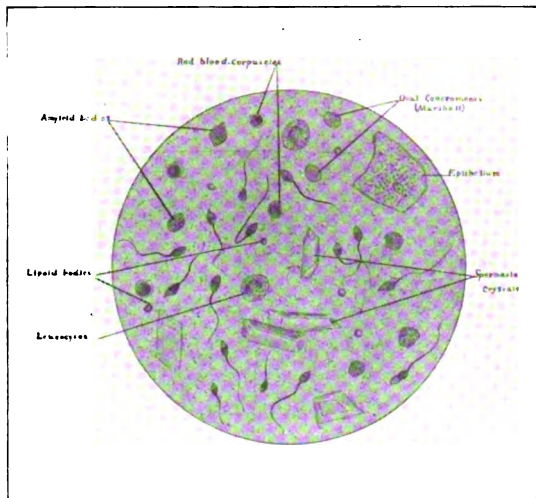


FIG. 4. Elements which may be found in microscopical examination of the semen.

possible adverse effect upon the semen. In a series of fifty cases the writer has studied the chemical reactions of the vagina and cervix. As a preliminary statement it may be said:

1. The reaction of the secretions of the vulva and vagina is acid; that of the cervix, alkaline. This is true in both virgin and married.

2. In normal, easily impregnated women the secretion of the vulva is more acid than that of the vagina, and that of the vault less acid than the outlet. There is, therefore, decreasing acidity from without inward, becoming alkaline at the cervix. It is probable that in the absence of nervous stimuli the spermatozoon is influenced by chemical means; fleeing from its antagonistic medium at the vulva and vagina it approaches its congenial existence within the cervix.

3. In general this reaction is maintained throughout pregnancy.

4. It is only temporarily affected by douches.

5. In so far as can be ascertained the reaction is not altered by the nearness of the menses, although the alkalinity of the sanguinous flow temporarily renders the secretions of the vagina and vulva alkaline.

6. The secretions within the vagina are rendered acid by the action of bacilli normally present. Tests (Döderlein's) indicate that the secretions at the time of their production are very faintly acid or perhaps alkaline in reaction.

7. Judging from limited study it seems probable that the acidity of the secretion of the vaginal dome is decreased or, indeed, completely reduced by the outpour of vaginal or cervical secretion incident to eroticism.

8. The acidity of the secretions of the vulva and vagina is diminished or neutralized by the alkalinity of purulent processes. Marked catarrhal conditions, non-purulent in character, seem to increase the normal reactions.

9. The secretion of the vagina is rendered toxic to the spermatozoa by the presence of pus and its toxins.

10. The acidity of the vaginal secretion is reduced by catarrhal conditions of the cervix resulting in a constant outpour of alkaline secretions into the vaginal vault.

Cukor (1) made a study of the chemistry of the secretions of the cervix and vagina, especially in reference to their bactericidal properties. He found the alkalinity of the former to be due to sodium hydroxide and the acidity of the vaginal secretion to depend normally upon lactic acid, the free acid

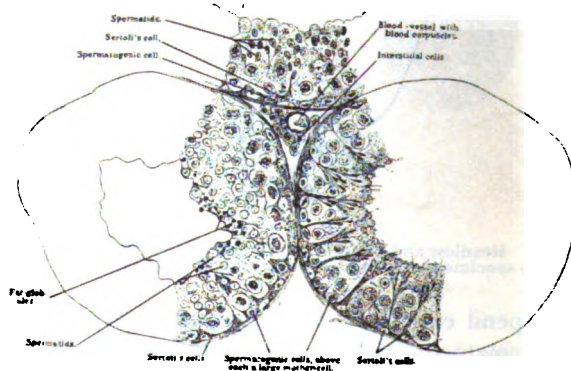


FIG. 5. Cross-section of seminiferous tubules of a mouse. X 360. Observe that the nuclei of the spermatids (below on the left), at first round, become oval (above) and are transformed (below on the right) into the heads of the seminal filaments. Technic No. 147. (Stohr).

and also the combined lactate, due to the presence of the cervical secretions in the vagina. From tests made, the percentage of total acidity within the vagina was found to be 0.9 per cent.

The writer has made observations<sup>3</sup> as to the influence of lactic acid and sodium hydrate solutions upon the action of the spermatozoa when these

<sup>3</sup> These observations are best made by the low power 1-6 lens. A cover-glass should not be used. For the study of the morphology of the cells in a specimen a cover-glass should be employed and the oil immersion lens utilized. The dark field method, while spectacular, does not assist. For methods of staining see Univ. Penn. Med. Bull., Mch., 1902, p. 3. Article by Martin, Carnett, Levi, and Pennington.



chemicals were introduced within the seminal discharge. At present they would seem to justify the following statements.

a. When a weak lactic acid solution (0.5 per cent.) is added to a given quantity of semen the action of the spermatozoa is not markedly influenced until enough is added to reduce the alkalinity of the semen and render the mixture acid, at which time the activity of the spermatozoa is re-

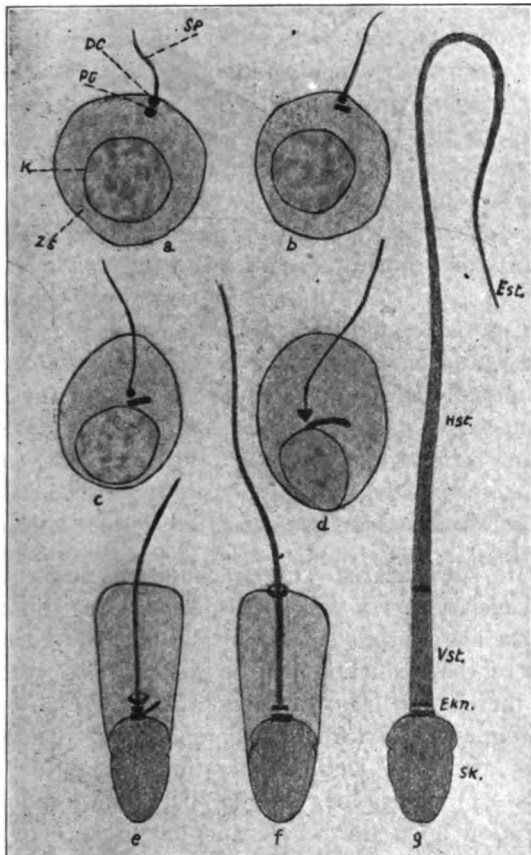


FIG. 6. Seven stages of the conversion of a spermatid into a spermatozoon (Meves). Figs. a to f: Zs, cell contents; K, nucleus; PC, proximal central body; DC, distal central body; SP, tail piece. Fig. g, head piece; Ekn, neck; Vst, junction piece; Hst, main piece; Est, end piece.

tarded and soon entirely ceases. Very faint acid reaction, however, does not immediately stop activity.

b. If the alkalinity of the semen be greatly increased by the addition of sodium hydrate solution (0.5 per cent.), the activity of the spermatozoa ceases. If the alkaline reaction be but faintly increased the activity of the cells seems at first retarded and later accelerated.

c. If to a line of semen,  $\frac{3}{4}$  inch long upon a glass slide, there be cautiously added at one end a drop of 1 per cent. lactic acid and at the other a drop of 1 per cent. sodium hydrate, observations made at once will show that, while at each pole

cellular activity will have ceased, due to hyper-reaction, there is a general tendency of cellular motion toward the alkaline end. This seems to hold

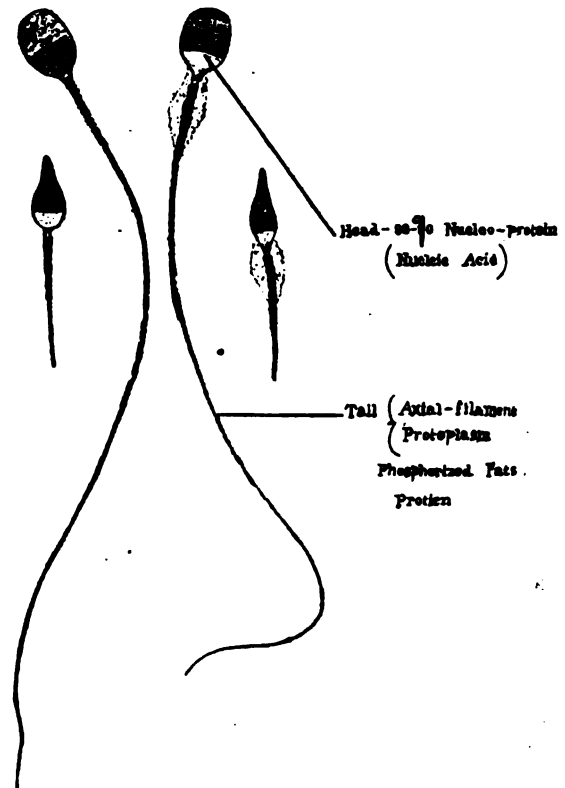


FIG. 7. Human spermatozoa on the flat and in profile. After Bramman, from Schäfer. Those on the right have adhering protoplasm. The tail is only partly shown in the two seen in profile. (Meischer, Histochem. u. Physiol. Arbeit, Vol. II, Leipzig, 1897).

good in about eight out of ten active spermatozoa. Examination must be made at once as the acid and alkali soon combine and the effect is lost.

d. Spermatozoa remain active in the thick mucus of the vagina as long as the semen is in excess and the alkalinity of the combined substances exists. This continues even in a faint acid reaction, but activity of the sperm cells ceases when so small an amount of semen is added to the vaginal mucus that the mixture remains acid.

#### DEFORMITY OF THE CERVIX AND DISEASES OF THE ENDOMETRIUM.

Assuming that normal semen has been deposited in a vagina favorable in reaction, non-toxic, and correct anatomically, and putting aside the irrelevant question as to the meeting place of the ovum and spermatozoon, it is obvious that to complete impregnation the living sperm cell must pass the cervix. Motility of the spermatozoa and an unobstructed cervix are the essential factors upon which this action depends. Other conditions, while not necessary, are conducive and have a relative importance. First, the vaginal dome



should retain semen into which the cervix dips, in this way favoring the entrance of the cell. Secondly, the chemical influence, previously referred to, probably directs the spermatozoa to the cervix through which their own activity carries them. The suction action of the cervix and the extrusion and retraction of the cervical plug, which is generally considered a part of the female orgasm, probably does not occur. This clinical study is supported by the examination of the cervical secretions of two patients immediately following coitus, where the presence of spermatozoa was not detected, and one of them easily became pregnant. It is verified by the fact that douching so generally prevents conception even when there is perfect sexual compatibility. The writer is not prepared

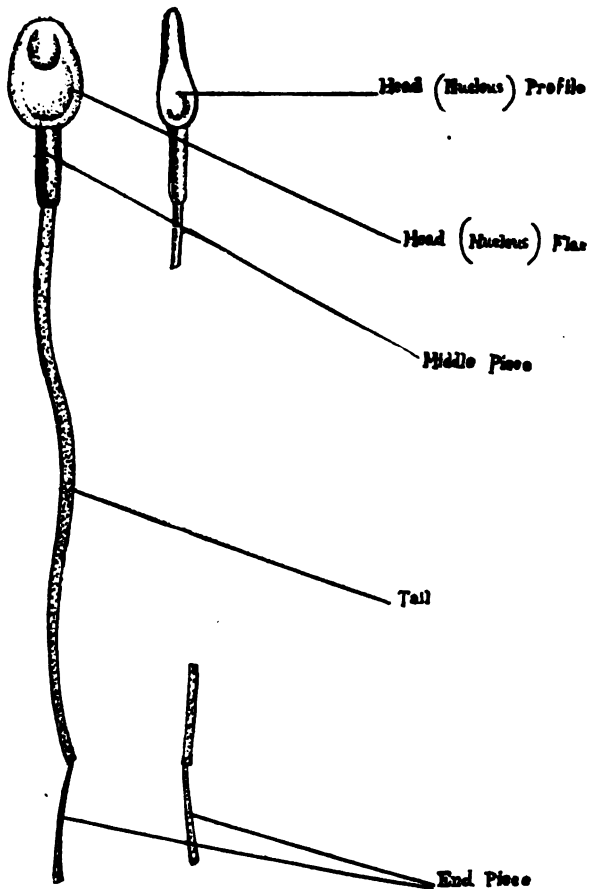


FIG. 8. Human spermatozoa (Retzius). This figure is frequently copied, but gives a wrong impression of the cephalic extremity. It was originally made to show the end-piece of Retzius. Compare with Fig. 7.

to explain some apparent exceptions to this rule, although it may very often be due to delay or carelessness in douching.

It has been clinically proved that in many instances the long conical cervix, with tiny aperture and with marked angulation, or modifications of this deformity, constitutes an obstruction to the en-

trance of the spermatozoa (Runge 2). Angulation of the cervix may be congenital or acquired, due to ligament spasm or contraction. The fact that a probe or sound may be pushed through such a cervix is not a final test as to its physiological patency, for such an instrument would pass an obstruction which would be abso-

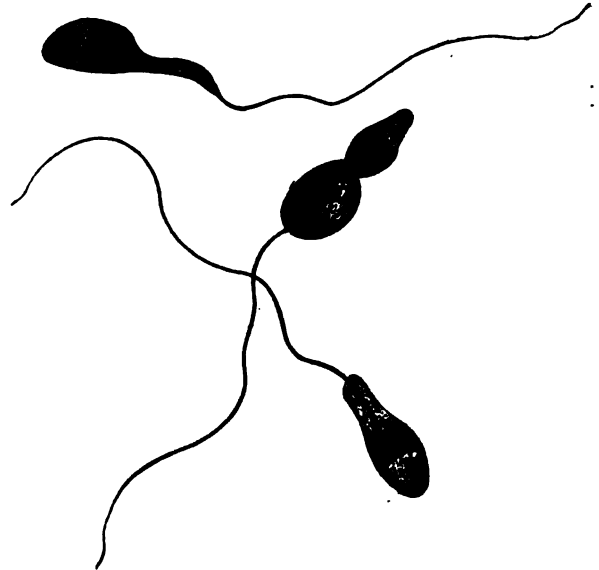


FIG. 9. Normal forms and modifications of no apparent importance.

lute to spermatozoa. Other conditions being normal, such a cervix will be suspected when dysmenorrhea has existed since puberty, and the correctness of the deduction will be sustained by results, for there is no class of cases which offer so good a prognosis. Brickner (3) reports 30 per cent. cures after the Dudley operation. One-third of Ott's (4) cases, long sterile, bore children after operation upon the cervix and lengthening of the anterior vaginal wall. Pozzi (5) reports 25 per cent. cures by bilateral splitting of the cervix. In a limited experience, the writer has twice had pregnancy follow in cases in which dilatation of the cervix under cocain anesthesia was done in the office. Neither is the frequently made statement that the spermatozoa will pass a canal patent to menstrual flow true, when symptoms suggest that exit to the flow is accomplished by painful contractions of the fundus. Such an association of symptoms is very frequent. Failure to cure sterility by correcting mechanical deformities is often due to lack of recognition of the accompanying lesion. I have found but one exception to the rule of the constant alkalinity of the cervix, a case of tuberculosis of the pelvis in an unmarried woman in whom the cervix has repeatedly given a faint acid reaction. Considering the marked alkalinity of the

semen it seems doubtful if the reaction of the cervical secretion plays a part.

The so-called mucous plug of the cervix has been undoubtedly overestimated in importance. By some, notably Gibbons (6), it is not considered causative when non-purulent. It is not mentioned by Edis (7). When very tenacious and in the absence of other demonstrable causes, it may be suspected and its responsibility proved or excluded by measures taken to control the secretion and clear the cervix immediately after the period. Endocervicitis, especially that due to gonorrheal infection, which maintains a purulent toxic condition of the cervical secretion, may prevent pregnancy. Frequently endocervicitis is only a part of a condition general throughout the uterine mucosa, and endometritis may be the chief lesion. In these cases local treatment of the cervix produces no permanent results and proves a futile effort in the attempt to correct sterility.

Pregnancy frequently follows curettage. This occurs because of the correction of the endometritis and tube occlusion, and, no doubt, is often due to the dilatation of the cervix incident to the operation. In a patient presenting frank symptoms of endometritis not responding to ordinary measures, in whom other causes are reasonably excluded, the small percentage of cures would seem to justify so simple an operation, solely for the relief of sterility, if elected by the patient.

#### DISPLACEMENT OF THE UTERUS.

Symptomless displacements of the uterus are rarely responsible for sterility. Such a verdict has been almost unanimously given by those who have made this a matter of special study (Rougy 8). Extreme degrees of fixation, metritis, and endometritis may prevent or interrupt pregnancy. These cases have defined symptoms, and in such conditions operation is indicated and pregnancy is favored by it. We sometimes hear patients demur at wearing pessaries, claiming that pregnancy is favored by them. This is due to the increased depth of the vaginal vault. If the uterus can be repositioned and held by a support, then a pessary test is desirable and will settle the matter of prognosis as far as the question of sterility is concerned. The following history is illustrative:

Mrs. H., 23 years old, married two years, never had been pregnant and presented herself for treatment of sterility. Negative pelvic history; general condition fair; normal menstrual history; no pelvic symptoms. Reported perfect sexual compatibility and good sexual hygiene. Examination of pelvic organs showed hyperacidity of the vaginal secretion and an uncomplicated retroversion. Before

treatment was instituted it was possible to secure semen under favorable conditions for good examination. It showed almost an absence of spermatozoa, only an occasional inactive one being found. Specimen was thin with little sediment, alkaline in reaction; an occasional leukocyte, much fatty debris, and many colloid bodies were present. The husband was asked to report, but did not respond. In the event of inability to secure semen a pessary correction test would have been tried.

#### DISEASES OF THE OVARIES.

A review of the literature fails to reveal any definite information in regard to the relation diseases of the ovaries bear to sterility. Such references to

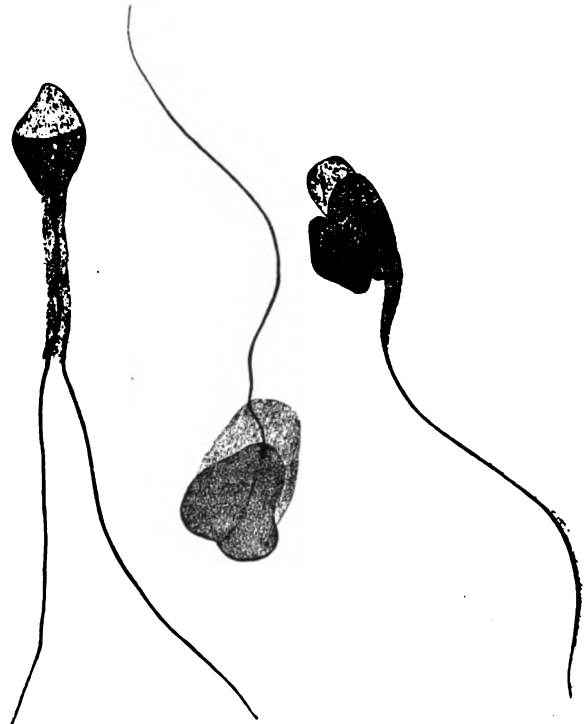


FIG. 10. Double tailed and double headed forms. Their significance is unknown. They may remain active as long as the normal.

the subject as have been made are not based on convincing study. The almost insurmountable difficulty encountered in acquiring definite data makes this inevitable. It presents an interesting problem for future investigation. At the present time study directed to the ovary is almost entirely confined to the question of internal secretion, while only general theoretical conclusions are made in reference to the etiological role pathological conditions of the ovary play in sterility. Absence and underdevelopment of the ovaries make fertility impossible, but such conditions are certainly rare. When buried in adhesions the ovum cannot reach the tube, but such states are secondary to tubal processes which are apt to be recognized in the history or examination. The thickened capsule of the ovary is almost universally referred to as a

cause of sterility, and yet there is no positive evidence to prove it. Microcystic ovaries are regarded by some writers as causative and Reynolds believes that they may be considered responsible for sterility. It is difficult to prove or refute this. In two cases recently operated upon by the writer, one week before the menstrual period, Graafian follicles were found ready to rupture, and in each instance the ovaries were, on the whole, of a character that would warrant their classification as microcystic. Pregnancy has repeatedly taken place in cases where only the slightest amount of normal ovarian tissue was left after operation or from new growth. Morris (9) reports cases where pregnancy followed transplantation of an ovary. Both ovaries must be incapacitated in order to attribute sterility to ovarian sources. Therefore, it would seem that the ovary must be very rarely accused as a cause of sterility, and the Fallopian tube, which is analogous to the epididymis in the male, must, like the latter structure, be considered at fault rather than the gland whose cellular production it transmits.

#### **THE FALLOPIAN TUBES.**

Occlusion of the tubes, secondary to different forms of gonorrheal processes, is the most frequent and best understood of the sterilizing lesions. It does not properly come under the scope of this paper and will not be referred to except to state that an absolutely hopeless prognosis should not be made in these cases. Resolution may ultimately take place and patency be established after years of sterility. Similar results are seen in the male when the epididymes have been closed for a period and then restored.

A case is occasionally encountered, when operating, in which closed tubes are found and where the history fails to reveal any former gonorrheal infection. These conditions may be secondary to unrecognized tubal pregnancies, appendicitis, tuberculosis, and the obscure colon bacilli infections which probably occur in the pelvis more frequently than is usually supposed. While such disabling of the tube is not possibly recognized by the bimanual examination, the necessity of detailed history taking and its importance in the prognosis is exemplified. These minor and coincident processes may interfere with the erectibility of the fimbriated extremity, may stay the action of its cilia, or make its investment of the ovary impossible, thus inhibiting the process which causes the entry of the ovum within the tube (Gerhardt 10).

#### **SEXUAL RESPONSE; HYGIENE; AGE; INFLUENCE OF HEREDITY.**

It is known that sexual feeling is not essential to fecundation. Most of the authorities state that it is a powerful influence. To the writer it seems that this influence may be manifested in three ways: First, it is believed that the vaginal secretions are rendered more conducive to the maintenance of the activity of the spermatozoa by the increased secretion incident to normal eroticism. Second, there is evidence that ovulation is stimulated by coitus (Oliver 11) and (Clark 12). Third, (Kisch 13) states that the normal muscle contractibility incident to coitus aids in the retention of semen within the vagina.

The conclusion is inevitable that prolonged, successful, artificial interference with impregnation is a cause of sterility. In just what way this is brought about there is no definite information.

The physiological influence of age upon sterility is well-known. Matthew Duncan, in studying the vital statistics in England found that sterile marriages are more common when marriage has taken places unusually early in life.

Marked fertility is a characteristic of some families, and is capable of transmission. It is reasonable to suppose that the opposite tendency is also transmitted and some families soon die out because of sterility. These conditions depend upon physiological laws which are as yet imperfectly understood, and even if ultimately interpreted will probably be difficult to control.

#### **CONCLUSIONS:**

1. One of every four sterile marriages is due to the sterility of the husband.
2. An attempt should be made, by examination of the semen, to determine the fertility of the male before instituting operative measures or carrying out prolonged treatment upon the female solely for the cure of sterility.
3. To determine accurately the fecundating power of the semen, not only must the presence and activity of spermatozoa be determined, but a careful study must be made, noting the percentage of inactive, immature, and deformed cells. When present and associated with oligospermia the fertility of the semen is much impaired.
4. Under favorable circumstances the activity of the spermatozoa persists for many hours. They are, however, extremely sensitive to abnormal environment and quickly perish. The seminal fluid is normally alkaline.

5. The secretions of the vagina are acid, due to the presence of lactic acid. The degree of acidity varies greatly. The secretion of the cervix is alkaline (sodium hydrate) in reaction. Less variance is here noted. These secretions exercise a bactericidal function.

6. The activity of the spermatozoa ceases in a lactic acid medium. Activity is accelerated by a faint increase in the normal alkalinity. In the absence of nerve stimuli the sperm cells flee from an acid medium and approach an alkaline one.

7. The secretions of the vagina are rendered acid by the activity of bacilli normally present. Tests indicate that the secretions at the moment of production are alkaline or faintly acid in reaction.

8. The acidity of the secretion at the vaginal vault is probably decreased by the glandular activity of the cervix occurring at the orgasm. This would explain why impregnation is, in some instances, favored by perfect sexual compatibility.

9. These facts seem to indicate that increased acidity of the vaginal secretion is unfavorable to fecundation.

10. Purulent vaginal and cervical secretions are destructive to spermatozoa.

11. Shortened vagina or relaxed outlet diminishes the opportunity of impregnation.

12. A long conical cervix associated with acute angulations or pinholes, or modifications of this deformity, may constitute an obstruction to the entrance of spermatozoa. Such cases offer a cure by operation in about one out of three.

13. The mucous plug of the cervix is not causative of sterility except when purulent in character or, rarely, when tenacious.

14. Curettage, if elected by the patient, is a justifiable attempt for correction of sterility when evidences of an unhealthy condition of the endometrium are alone present.

15. Uncomplicated symptomless displacement of the uterus should not be considered productive of sterility until other causes are excluded.

16. Little definite information is available as to the frequency with which diseases of the ovaries are responsible for sterility. Except in case of gross lesions they are probably rarely unable to produce a mature ovum.

17. In history taking, the possibility of tube occlusion, due to unrecognized tubal pregnancies, or tubercular, typhoid, or colon bacillus infections of the pelvic organs must be considered.

18. Sexual compatibility is not essential to fertility, but undoubtedly favors it.

19. Prolonged successful prevention of pregnancy is sometimes followed by permanent sterility.

20. Tendency to limited offspring may be transmitted by heredity.

21. The relations certain minor lesions bear to sterility cannot be determined in many cases except by exclusion.

## REFERENCES.

- (1) Cukor. *Klin.-Ther. Woch.*, 1909, Dec. 16, 1334.
- (2) Runge. *Arch. f. Gyn.*, 1899, lxxxvii, 57. *Aetiologie und Therapie der Weiblichen Sterilitaet.*
- (3) Brickner. *Surg., Gyn. and Obst.*, 1911, Nov., 510.
- (4) Ott. *Zeit. f. Gyn.*, 25, No. 12, 47.
- (5) Pozzi. *Am. Jour. of Obstet.*, 1909, lix, 1017.
- (6) Gibbons. *Lancet*, 1910, 705. *Lecture on Sterility.*
- (7) Edis. *Sterility in Women*. Blakiston, 1890.
- (8) Rougy. *Med. Rec.*, 1911, Feb. 18.
- (9) Morris. *Med. Rec.*, 1906, May 5.
- (10) Gerhardt. *Jena. Zeit.*, 1905, xxxix. *Die Ueberleitung des Eies in die Tuben.*
- (11) Oliver. *Edin. Med. Jour.*, 1902, liv. *A Study of Fertilization with Reference to the Occurrence of Ectopic Pregnancy.*
- (12) Clark. *Johns Hopkins Hosp. Rep.*, 1900, ix. *The Origin, Development, and Degeneration of the Blood-vessels of the Human Ovary.*
- (13) Kisch. *Die Sterilitaet des Weibes*. 1895. Second Edition.

A MODIFICATION IN THE REPAIR OF  
THE PELVIC OUTLET.\*

By JOHN C. MACEVITT, M.D., Brooklyn, N. Y.

Accompanying lacerations of the perineum of long standing we frequently meet with a prolapsus of the recto-vaginal walls constituting a condition commonly known as rectocele. The prolapsed portion varies in extent from a marked bulging to a distinct tumor occluding and protruding through the lacerated recto-vaginal space. It has been my custom, when repairing the injured pelvic outlet where this condition existed, to adopt the following method for its restoration. I will not say it is original, for on account of its simple technic it must have intuitively appealed to other surgeons, yet I have never seen others perform or describe it. The results have been so uniformly good that I have no hesitancy in advocating its adoption. A very brief outline of the anatomy of the posterior triangle of the pelvic floor and my theory of the production of the rectocele will be necessary for a clear understanding of the injury and the logic of the simple operation I am about to describe.

The principal muscles entering into the support of the pelvic floor—and by pelvic floor in this instance I mean the so-called perineal body, or the space between the posterior segments of the vaginal and anal outlets—comprise the levatores ani, trans-

\*Read before the Brooklyn Gynecological Society, April, 1912.

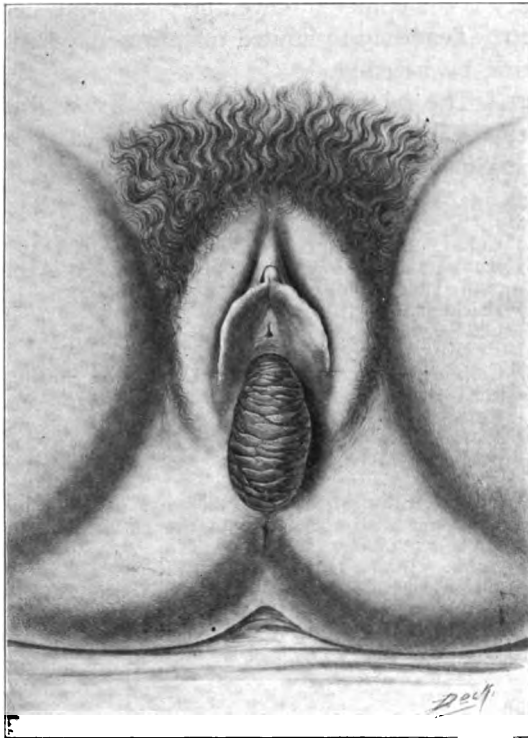


FIG. 1. Advanced rectocele complicating partial laceration of the perineum.

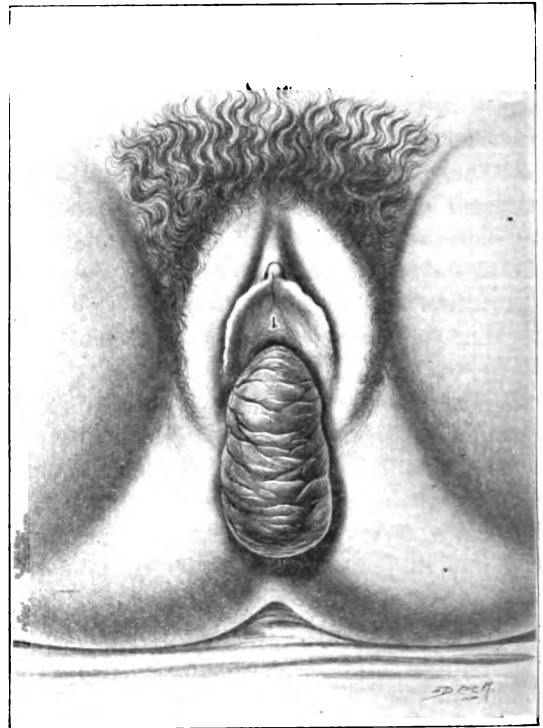


FIG. 2. Aggravated rectocele.

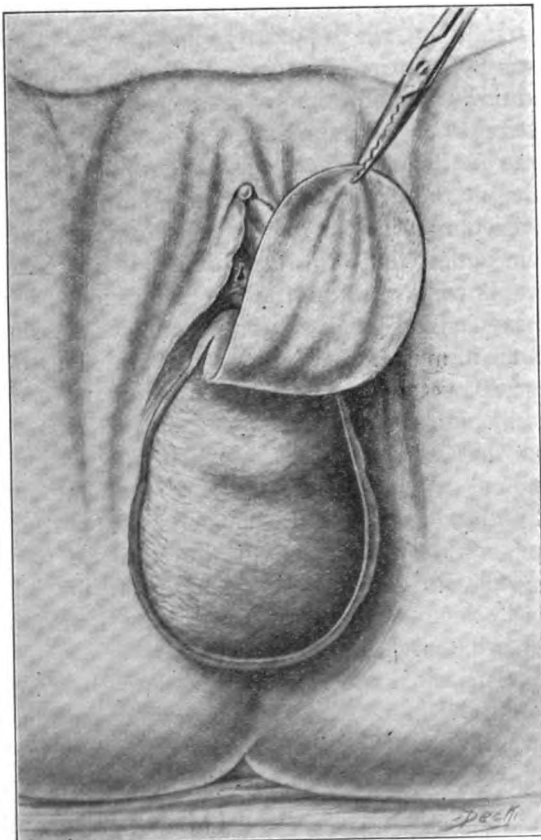


FIG. 3. Denudation of rectocele sac.

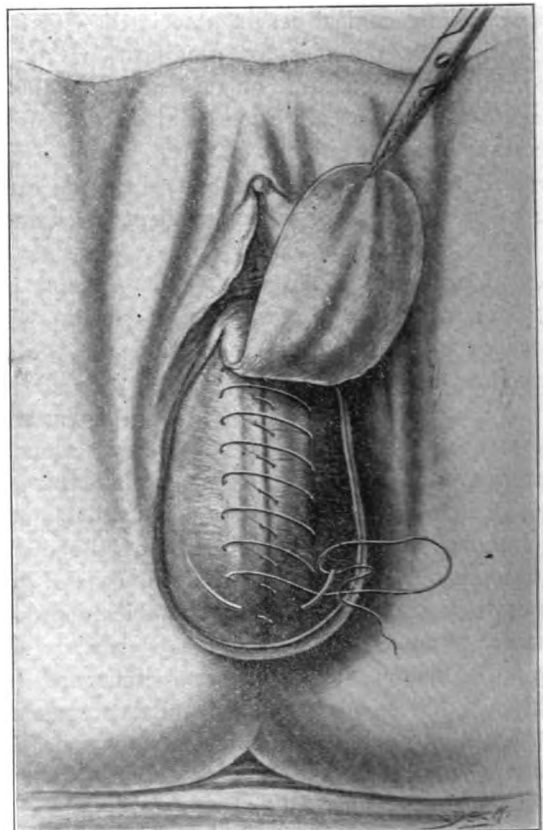


FIG. 4. First line of sutures tied. Second line about to be completed.

versus perinei, vaginal and rectal sphincters, with the deep and superficial fasciæ enveloping them. Though not usually mentioned in this regard, the muscular coats of the vagina and rectum play no unimportant role in this support. In a complete tear we have a division of all of these tissues, muscular, fibrous and aponeurotic, which in time will lead to a relaxed outlet with some one of the degrees of prolapsus uteri and cystocele, but in which rectocele is not prominent. In theorizing on the absence of rectocele in complete tears and its prominence in incomplete ones, I am led to the conclusion that when the rectal sphincters are left intact or but partially destroyed, they act as a support to the lower end of the bowel, and, through the habit of constipation, this rectal ampulla becomes a reservoir, gradually distends, and in time is extruded over the sphincteric band to such an extent that on occasions defecation is impossible without manual reposition of the sac upward.

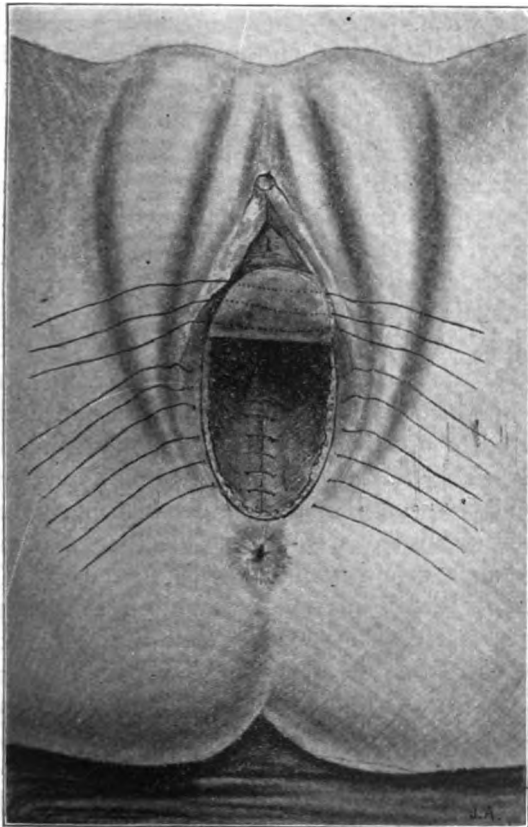


FIG. 5. Complete reduction of rectocele and perineal sutures in position.

The woman becomes alarmed at the presence of the tumor and seeks relief after suffering for years from a condition of which the rectocele is but a symptom.

This operation is for the reduction of the rectocele preliminary to perineorrhaphy. With a pressure forceps pick up the vaginal mucous membrane at the upper circumference of the distended and

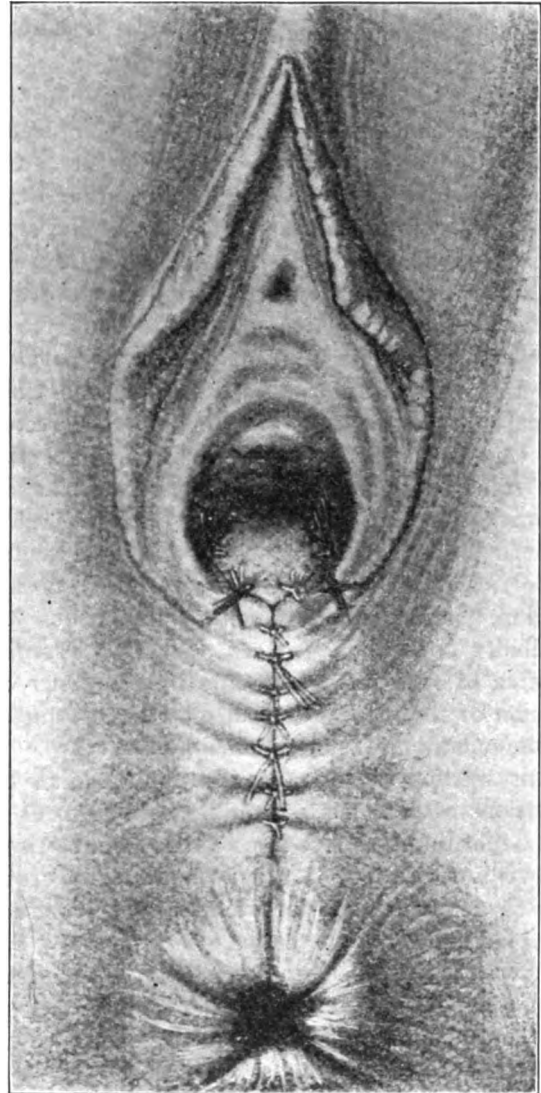


FIG. 6. Perineal sutures tied. Operation completed.

attenuated sac, to be held in place by an assistant. This will act as a guide to the extent of the upward denudation. In a like manner with forceps mark the upper extremities of the usual preparatory integumental incision around the vaginal orifice; they will also act as guides to the dissection. Introduce the index finger into the rectum, and with a pair of moderately curved, blunt-pointed scissors dissect up the vaginal mucous membrane over the whole extent of the tumor, dipping down into the sulci and up on the lateral walls. This will leave a large denuded surface. Care must be exercised in this dissection owing to the extremely thin recto-

vaginal wall. Hemorrhage will be troublesome, and, as both hands are employed, its care will be the duty of your assistants until the completion of the denudation (the finger is then removed from the rectum and necessarily re-disinfected). The forceps holding the upper vaginal wall is now released to grasp the lower margin of the dissected flap, lifting it upward out of the way and exposing the denuded area. A fine curved needle, threaded with No. 0 plain catgut, is introduced about four millimeters from the central line of the tumor at its upper extremity to emerge the same distance on the opposite side, when the thread is tied and a continuous suture carried downward to the anal margin and tied. This procedure is repeated until all the redundant portion is converted into a strong central raphe, embracing the longitudinal and circular muscular fibers of the rectum and vagina, fibrous and elastic tissue, together with some of the fibers of the levatores ani and internal sphincter. Thus it restores the bowel to its normal size, forms a thick longitudinal central support, aids the muscles to resume their normal position, size and tonicity, diminishes the possibility of blind spaces, greatly lessening the area of raw surface, and facilitates easier coaptation of the major perineal muscles in completing the operation of perineorrhaphy.

This method is more readily applicable to the operations of Hegar and Tait than to Emmet's or its modifications. There is no portion of the tissue removed. With the last two perineal or crown sutures, gather in the base of the flap in longitudinal folds and with fine catgut coapt any raw surface remaining exposed in the puckered outer margin. This seeming redundant flap tissue will contract and absorption will take place with a resulting good, strong pelvic floor.

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### THE SILVER STEM PESSARY FOR AMENORRHEA AND DYSMENORRHEA, STERILITY, ETC.

By J. H. CARSTENS, M.D., Detroit, Mich.

When Velpeau in 1840 originated the stem pessary for displacements it was soon found that it was a dangerous instrument, and since then dozens of others have devised different shapes and different material for stems. These were all found more or less wanting, and as a rule *very dangerous*. In the light of our present knowledge we can readily see why in those days the profession

used stem pessaries that were injurious. They did not understand aseptic surgery and knew nothing of pus tubes, and very little of pelvic inflammation. We now can see what a dangerous instrument the stem pessary is without asepsis by lighting up tubal troubles.

Twenty-eight years ago I called attention to the value of dilatation of the uterus with steel dilators and the value of continued treatment in developing the womb, relieving amenorrhea and dysmenorrhea. Learning in the course of time that the presence of *foreign bodies would cause a greater flow* and also that obstructive dysmenorrhea would be relieved by forcible dilatation, I soon found that in many cases re-contraction would take place and the menses would be as painful as ever. Studying up at this time the physical development of muscles by exercise, I made up my mind that the way to develop the small infantile womb would be by exercise, and knowing that there is a constant more or less perceptible contraction of the uterine muscles when there is something in the womb, it occurred to me that by putting something in it like a stem pessary it would cause contraction, an effort at expulsion. Thus the uterine muscles would become larger and stronger, and if at the same time there were a contraction of the internal or external os or an antelexion, as is often found, then by the insertion of a stem the uterus could be kept straight and open and would develop and grow larger. I then looked around for a pessary that would do the work properly, and I finally settled on the Chamber stem pessary, made of rubber, the two arms of which will separate when in the uterus; so I started to use this device and found it very efficient. The only trouble I had at first was that it would come out, because the two branches would not stay separated, would come together, and then being simply round would be easily forced out. To overcome this I inserted in addition a Thomas-Hodge pessary, which would throw the uterus forward; and then the stem would remain in place; only once or twice did both of them come out together, especially during severe straining at stool.

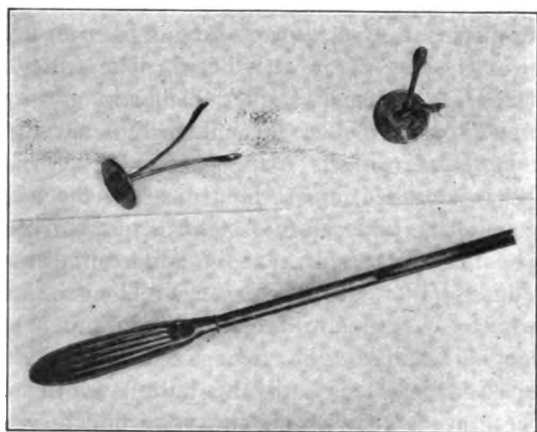
This second pessary, however, is disagreeable, in many cases troublesome, and sometimes the rubber will become corroded (although very rarely), and then a bad smelling discharge, even if slight, will annoy the patient. These kinds of stems I have used in hundreds of cases with the greatest benefit, and only in very few could they not be retained, or cause trouble. Women have retained them for years, and traveled all over the world; in fact I have one in my pocket now that a



physician's wife has worn for four years, and she dreaded to take it out, for fear that her old trouble would return, and she would have to have it re-inserted.

When I started the use of this method of treatment twenty years ago I was, of course, fully aware of the dangers and the great discomfort that had been caused by stem pessaries, and called attention to the great need of making an absolutely correct diagnosis, with a view of *excluding former pelvic troubles*. Any patient that has had pelvic trouble and consequently has adhesions, etc., is a case for abdominal surgery and not for the stem pessary. Cases of flexion or displacement require other operations and are not adapted for the stem pessary.

*The stem is very useful in all those cases where the trouble is in the uterus alone.* After having written considerable on this subject, I noticed that



others began the use of the stem—timidly at first—and thinking that they could improve on the Chamber's stem, they invented stems of their own. I have seen some in the shops—little picayune things, not half long enough—to be inserted in the cervix and allowed to hang out, and supposed to drain the uterus. Now, these men have not even grasped the principle involved, which is the *development of the uterus in these cases*; that is, that the stem must reach to about the fundus to irritate slightly the womb so that it will *make efforts* to expel it, and as the result of exercise will get stronger. That is the way I look at the matter and why I wrote so much about it in order to have it understood by the profession.

Some time ago my friend, Dr. King, of Kansas City, Mo., suggested the use of the silver stem instead of the rubber, and I have tried this with

beneficial effect. I had under treatment a young school teacher in the country, who threatened to commit suicide on account of painful menstruation, being laid up several days every month, and was on the point of losing her position. She was sent to me by her family physician and I inserted a Chamber rubber stem with magical effect. She was most promptly and completely relieved, and could attend to her work. But in the course of time a bad smelling discharge, slight, but of a very disagreeable odor, developed. Thinking it might be due to the rubber I removed the stem, which had been in about six months. In the course of a couple of months her old trouble began again. She was absolutely distracted, virtually insane, about to kill herself; said there was no use of living; she was a burden to everybody, and so on. I persuaded her to give me another chance and inserted a silver stem with the result that the disagreeable discharge and odor have not manifested themselves since. I saw her the other day; she has now worn it six months and is the happiest person in Oakland county. All her gloomy thoughts have disappeared, she is perfectly well and life is again worth living.

#### AMENORRHEA.

So many conditions produce amenorrhea, that naturally I cannot go into that question in all its details. Constitutional and hygienic treatment is of course important, but in many cases in young girls the trouble is an *infantile uterus*. This seems to me frequently due to our present mode of living, lack of exercise and fresh air, and too much study at the age of puberty. The girl who is a "Tom girl" is not troubled that way.

Menstruation in these patients is probably scant or occurs at irregular intervals. This condition especially is relieved by the stem. The other class of cases occurs later in life. Unmarried women who do mental work with lack of exercise, such as school teachers, stenographers, etc., frequently find that menstruation becomes scant and irregular; some of these have been perfectly normal the first ten years. On examination we find that premature atrophy of the uterus has taken place. Then we have fleshy women, great eaters, who often suffer from scant or absent menstruation, as is well known. The stem and regulation of diet produce wonderful results in these cases; menstruation becomes regular, flesh and fat fade away, with return to a normal condition. I have seen some patients who refused to have the pessary removed for fear the old trouble would come on again.

## DYSMENORRHEA.

This is a most distressing condition. Women who work and suffer severely are laid up for a day or two, and even more, every month; they often lose their positions and consequently are in great trouble. These are some of the most distressing kind of cases the family physician has to deal with; all the medication recommended is of little avail, and these are the women who easily get into the habit of taking narcotics. They find a remedy to relieve them; they use it only at that time, but gradually instead of one or two doses they take three or four, and then will begin to resort to it for other little pains they may have. Finally operative measures are instituted, such as dilation and curetting, with only temporary benefit as a rule, and as a last resort the removal of the ovaries is advocated and done. Some years ago this was quite frequent and many young women have virtually been ruined. Naturally we must bear in mind that there are cases of ovarian and tubal disease which require removal, but these have nothing to do with our proposition.

The most marvelous results have been brought about by the use of the stem in dysmenorrhea, be the pain before or immediately after the menses, or in cases of the so-called "Mittelschmerz," and the blessings you get from these poor suffering women is certainly wonderful.

## STERILITY.

The great mental distress some women suffer because they are childless is most pitiful; they are willing to undergo any kind of treatment and operation to be cured. If their internal organs are normal and have had no infections, and the condition is due to the uterus alone, such patients are frequently cured by the stem pessary. Many of these cases also have amenorrhea and dysmenorrhea, and that is the way I found out the value of the stem, using it for both these conditions. Some of these women would become pregnant afterwards, and they would send other women to me suffering from sterility. Hence I often use the stem pessary for sterility alone, and make them wear it four to six months. During this time there is some change produced in the uterine muscles, and I believe also in the mucous membrane, that enables them to become pregnant. It does not require a normal ovule and healthy spermatozoa alone, it also needs the *proper soil* for pregnancy to take place.

## GENERAL CONDITIONS.

Naturally in many of these cases we have two or more of these distressing ailments—in some instances scant and painful menstruations, or painful

menstruations and sterility—so that we can kill two birds with one stone. Of course, I insist on thorough investigation and correct diagnosis; that must be understood. Whatever other conditions are present must be treated, such as anemia, indigestion, constipation, abdominal ptosis, etc., and all organs must be restored to a perfect condition, or as near so as possible.

## BEWARE OF PELVIC INFLAMMATION OR ADHESIONS.

I cannot emphasize this too much: all the bad results that have followed the stem pessaries in the past were simply due to the neglect in making a diagnosis of pelvic trouble. Pelvic diseases require abdominal section for diagnosis and relief. The stem pessary is to be used only when the diseased condition is limited to the uterus. In rare cases when there is a little cervical endometritis, I curette and swab out the uterus with pure carbolic acid and then insert the stem.

## TECHNIC.

The insertion of a stem pessary is painful, hence requires the use of an anesthetic. The patient is prepared in the usual manner, cathartic, antiseptic bath and so on. Under the influence of anesthesia (I myself use nitrous oxide gas and ether), the vagina is scrubbed, and I then measure the length of the uterus, and select a stem, a quarter of an inch or more shorter, so that the point cannot touch the fundus (there are three sizes). Then the uterus is dilated, first with a Nott's dilator, then with a Goodell-Erlanger, the stem fixed in the introducer, and inserted until the button at the end touches the cervix; by putting your finger on the button you hold it and pull out the introducer and the stem is in place. And if a retroversion pessary is needed it is now inserted, although with the silver stem it would be rarely needed. The patient is kept in bed twenty-four or forty-eight hours, and then allowed to move about, follow her usual vocation. I use carbolyzed douches for a day or two, but not afterwards, unless there should be some discharge. Some women have this after menstruation for a short time, and they can use injections then, but not otherwise. I never could see any need of the continued use of a douche.

## CONCLUSIONS.

First, a silver stem pessary can be retained a long time without causing trouble.

Second, it will relieve the different varieties of amenorrhea, no matter what the cause, if assisted by proper constitutional treatment.

Third, it will cure dysmenorrhea due to abnormal conditions of the uterus.

Fourth, it will cure sterility (if we can use that expression), when this is caused by either of the above named conditions.

Fifth, its use requires an absolute exclusion of pelvic inflammation.

[In order to prevent many inquiries I would state that the silver stems were made for me by A. Kuhlman & Co., Detroit, Mich.]

## A COMMON ABUSE IN THE PRACTICE OF GYNECOLOGY.

By HENRY ALBERT WADE, M.D.,

*Attending Gynecologist to Williamsburg Hospital; Attending Surgeon to Bethany Deaconess Hospital, Brooklyn, N. Y.*

Curettement of the uterus is the most common of all gynecological operations. Not only the general practitioner, but many surgeons seem to feel that it is indicated in all menstrual and sexual disturbances—if not by itself, then as an auxiliary procedure to repair of the cervix or perineum or before an abdominal section.

In order to consider this subject in an intelligent manner I will direct your attention to two well demonstrated facts: First, the impossibility of thorough curettage of the uterus. Second, the inability of the pathologist to distinguish under the microscope normal from inflamed endometrium, except in rare instances.

As to the impossibility of smoothly curetting the entire lining of the uterus, the writer has in several instances curetted with exceeding care the endometrium and has then hysterectomized the patient. On section of the uterus, numerous furrows and scratches were seen, and various areas of mucous membrane had not been touched by the curette. Some of the furrows were of sufficient depth to include muscle as well as mucous membrane, while some of the scratches were very superficial. You will recall that the glands are most numerous in the fundal portion of the uterus and in the cervix, and it was in these parts that the curettement was most poorly performed.

Hitschman and Adler (1908) demonstrated the following facts regarding the changes occurring in the normal uterine mucosa during the menstrual cycle. The cycle is divided into four stages:

First: A pre-menstrual stage. In this stage there is thickening of mucous membrane and increased glandular activity. These changes occur about seven days before the menstrual flow.

Second: The menstrual stage. In this stage there is great vascular engorgement, and as the flow

begins, red blood cells are found in the superficial layers of the endometrium and later in the cavity of the uterus. The menstrual flow produces a rapid emptying of the mucous membrane.

Third: The post-menstrual stage. This period is short and inactive. The mucous membrane is thin and pale, secretions are absent, and the stroma consists principally of spindle cells.

Fourth: The final stage or interval. In this stage the mucous membrane gradually returns to its normal color and appearance.

With these facts in mind, we can see how frequently a hypertrophic endometritis has been confused with scrapings taken from a normal endometrium during the pre-menstrual stage in the menstrual cycle, and that the picture generally interpreted as interstitial endometritis is the normal mucosa of the post-menstrual period. The presence of plasma cells is generally accepted as an evidence of a pathological endometrium.

We are all agreed that we should not meddle with an acutely inflamed uterus. The bacteria are active and the patient has not been sufficiently vaccinated against the toxins that will be taken up into the blood if the germs that have found their habitat in the endometrium be disturbed. Not only will the patient not be benefited by surgical interference, but her life may be jeopardized. It is the chronic forms of endometritis that are generally treated by curettage. In endometritis of the cervix the glands are deeply imbedded in connective tissue and it is impossible to thoroughly remove all of the infected glands by means of dilatation of the cervix and curettement. A hysterotomy is the only operative procedure that will thoroughly expose the diseased area and permit of a complete removal of the diseased glands by the use of the small sharp curette.

In erosions of the cervix the best therapeutic agent is the actual cautery heated to a dull red. The cauterization should extend to at least a depth of one-quarter of an inch. In slight cervical erosions, accompanied by lacerations, a low amputation will entirely relieve the condition. I am convinced that many cases of chronic corporal endometritis that have improved after a curettage have done so not because of the curettement but in spite of it. The dilatation of the cervix and subsequent adequate drainage, together with the sexual rest obtained as a result of the operative procedure, are the principal factors that tend toward restoring the inflamed endometrium. Tincture of iodine (50 per cent. of the officinal tincture) should be employed as a prophylactic against bacterial invasion in all instrumentation of the uterus.

To obtain satisfactory drainage of the uterus after dilatation of its mouth the uterine body must occupy a position in the pelvis at an angle of 50 degrees anterior to the vagina.

Curettement of the uterus before plastic operation on the cervix and lower vaginal tract is wrong in both theory and practice and should be discontinued. The repaired cervix or perineum is kept bathed in the exaggerated uterine secretions and healing is delayed. Bacteria that may have lain dormant for months in the endometrium are disturbed and made perniciously active. I believe that we would see more cervices and perinei after plastic operation perfectly healed if the curettage of the uterus as a preliminary procedure was abandoned.

In post-partum or post-abortive cases in which the placenta or portions of the fetus have not been entirely delivered from the uterus, the curette should not be employed. In these cases it will frequently be necessary to slowly dilate the cervix, and if it does not dilate readily it is better to cut rather than tear the cervical tissues, before we can empty the uterus of its contents by means of the gloved finger, an empty sponge-holder, or a placental forceps. A piece of gauze saturated with a 50 per cent. solution of the tincture of iodine should now be introduced into the cavity of the body of the uterus and allowed to remain in this position for about thirty minutes. When the gauze is removed the remaining small portions of placental tissue will adhere to the gauze and be removed with it.

Uterine curettement has frequently been performed for conditions the origin of which is entirely extra-uterine. For example, large and over-active ovaries by producing a more than normal secretion will cause an exaggerated congestion of the endometrium and consequently an excessive menstrual flow. Curettement under these conditions is plainly contra-indicated.

In conclusion, considering the difficulty in making a positive diagnosis of pathological endometrium and also the impossibility of removing all diseased tissue when present by the aid of the curette, I feel assured that although this instrument is an aid to diagnosis of suspected malignancy of the uterus, it has little value as a therapeutic agent.

**Combined Operation for Rectal Cancer.**—Dr. Riese (*Deut. med. Wochensch.*, No. 8, 1912) remarks that the high mortality of the Kraske (combined abdominal and sacral extirpation) method has been to some extent reduced. Its advantages are that bleeding can be more readily arrested and high seated growths more easily removed. He has performed this operation in eleven cases with five deaths. Among the last seven cases, however, only one died—a decided improvement in the statistics.

## UTERINE DISPLACEMENTS AND THEIR TREATMENT.

By C. L. BRADFORD, M.D., Pittsburgh, Pa.

The mechanism, etiology and complications of uterine malposition are so generally known and thoroughly understood that any discussion of the subject, to be of interest, must suggest some new element in treatment.

While this paper deals with no new operative procedure, it does suggest the combination of certain tried methods of overcoming the most important obstacles to the return of and retention in its normal position of the displaced uterus.

Of the five varieties (and their combinations) of displacements, i. e., forward, backward, downward, lateral and upward, the backward, the downward and a combination of both furnish about 90 per cent. of the morbidity due to malposition.

The lateral and upward displacements are practically always associated with tumors pushing or adhesions pulling the uterus, and the displacement is merely an incident, not in itself requiring treatment.

The forward displacements, except when associated with an atresia of the cervical canal, require no treatment. Now if the backward, the downward and their combinations are divided into simple and complicated displacement, we find that the simple is practically always of one variety—and that the backward, the fundus lying in the hollow of the sacrum. This occurs in nulliparous women and is usually associated with the so-called asthenic type, in which the normal body fats are very much reduced, the general musculature is flabby and incompetent, and the abdominal and pelvic organs have all descended more or less.

The fact that the so-called ligaments of the pelvic and abdominal viscera are themselves composed of muscular tissue accounts satisfactorily for their relaxation along with that of the general musculature.

Taking all this into consideration, it would seem probable—and as a matter of fact is true—that a reposition of the uterus would not be attended by any very brilliant results. However, as in many of these patients a knowledge of the malposition aggravates the symptoms, and as its operative cure is simple, it probably justifies itself.

The complicated varieties are, in a very large percentage of cases, the direct result of trauma incidental to childbirth. The complications are tears of the perineal body, relaxation of the vaginal tube and the retro- and peri-vaginal connective tissue,

this permitting cystocele and rectocele of greater or less extent.

Tears of the uterine cervix are often associated with hypertrophy and adenomatous degeneration and subinvolution of the uterine body, increasing its weight.

The complications not traumatic are tubal and ovarian infections, intra- and extra-uterine tumors. Since the inauguration of the era of elective surgery very many operative procedures have been devised for the reposition of the uterus to its normal position; of these most were useless and some were iniquitous. There are, however, several which are not only simple of performance but efficient and permanent in result.

In the simple backward displacements of nulliparous women the method of Alexander for shortening the round ligaments through the inguinal canal is simple and satisfactory. If, however, there is associated with this displacement a long cervix and a narrow cervical canal, which causes dysmenorrhea and its attendant chain of nervous symptoms, I prefer to resort to the procedure about to be described, which, with slight modifications, is done for all malpositions of the uterus, except the upward variety and those associated with infected tubes and ovaries or tumors.

This is a combination of procedures originated by several men, among them Dührssen, Dudley, Hegar and Tait.

After the ordinary preparation of the vaginal tract, the cervix is grasped firmly by its anterior lip, pulled well down, and at the cervico-vaginal junction anteriorly a transverse incision one and one-half inches long is made.

The middle of the anterior lip of this incision is grasped by hemostats, and the loose connective tissue between the bladder and the uterine wall pushed away with the finger. When the bladder is fairly well freed, a blunt-pointed pair of scissors is pushed forward from the middle of the transverse wound between the bladder and the anterior vaginal wall, cutting longitudinally and forming with the transverse incision a T shaped opening.

The bladder is now thoroughly freed, pushed up behind the pubic arch, and retained there by a sharply angulated speculum held by an assistant. The vesico-uterine fold of peritoneum now presents in the wound and is snipped through, the cervix is pushed back into the hollow of the sacrum, the fundus of the uterus is pulled forward into the wound, and the round ligament on each side is grasped, folded on itself and shortened by passing through the fold several fine catgut sutures.

If there has been some descent as well as backward displacement, the broad ligament is picked up first on one side and then on the other and sutured to the anterior uterine surface. However, the perfect freeing of the bladder is the most important step, and, associated with shortening of the round ligaments, is usually efficient.

The cervix is now again pulled forward and, if hypertrophic, lacerated or undergoing any form of degeneration, the transverse incision is continued completely around and the cervix freely amputated. A triangular section is removed from each longitudinal side of the T incision, the cervix covered with the vaginal mucosa, and the longitudinal incision closed.

A relaxed perineum is repaired by incising the skin from before backward. The vaginal wall is pushed away from the rectum and the levator and picked up on each side and sutured with buried catgut; the skin wound is closed with skin clips. This procedure is simple, efficient, and may be used in all except infected or tumor cases.

When, because of tumors or infections of the pelvis, it is necessary to open the abdomen, the round ligaments may be matted, the bladder and vagina separated, and the broad ligaments shortened in front of the uterus. This, however, is not frequently required.

Upward displacements are of course cured by removal of the tumor or adhesions when possible.

Forward displacements, when producing symptoms, are always associated with descent and are treated as described.

### INDICATIONS FOR CESAREAN SECTION.\*

By J. BERTRAM DOWD, M.D.,  
*Gynecologist to Williamsburg Hospital, Brooklyn, N. Y.*

The subject which I have chosen is one of great importance in view of the fact that it deals directly with life or death, namely, the best method of delivery in certain difficult cases of parturition. Much has been said and written on Cesarean section, but I feel it will not be amiss to give briefly some of the indications for this operation, viz.:

1. Deformed pelvis.
2. Eclampsia.
3. Tumors.
4. Placenta previa.
5. Rigidity of the soft parts.
6. Large head, abnormal presentation or posterior position which cannot be corrected.

\*Read before the Staff Association of Williamsburg Hospital, May 6, 1912.

7. Certain high or difficult forceps cases and difficult versions.

Taking these in order, we will class all pelves as deformed where the true conjugate measures three inches or under, including rachitic, flat, justo-minor, etc.

Case 1.—Mrs. M., primipara; undersized with general contraction of pelvis. Full term L. O. A., labor two hours. Cesarean section. Both mother and child living.

Case 2.—Mrs. H., two-para. First child delivered by forceps; still birth. Second child full term, L. O. A. Flat pelvis; twenty hours in labor; forceps for two hours. Cesarean section. Both living.

Cesarean section in eclampsia with undilated cervix offers less shock to the patient than a difficult manual dilatation followed by forceps or version. The following case will illustrate.

Case 3.—Mrs. B., Italian, primipara, eight months pregnant, was attacked with convulsions. The family physician was called and found the patient having one seizure after another. He tried to control the convulsions with chloroform and other means which failed. Patient was admitted to hospital in an unconscious condition, with high tension, rapid pulse, temperature 100.8 deg.

On examination I found L. O. A. position, fetal heart action good, long, rigid, undilated cervix. Cesarean section was performed. Mother living, child died on the fifth day.

Case 4.—Mrs. S., primipara. L. O. A. at term; in labor ten hours; had four convulsions before entering and one while in the hospital. Cervix undilated and rigid. Cesarean section. Both living.

I think that in subjecting these women to section, you lessen the amount of shock and traumatism that would have attended any other means of delivery.

Of course, all forms of tumors causing obstructions would be indications for Cesarean section, such as fibroids, ovarian cysts and carcinoma of the cervix. Another class of cases are those with rigidity of the soft parts, those with large cicatrices following old lacerations or amputations of the cervix, impacted head and face cases, as well as some where ventral fixation has been done. Take for instance in the older primiparae, a woman of thirty-two to thirty-five years, pregnant at full term, shows two or three fingers' wide dilatation with a rigid os. She has been in labor for thirty-six hours, with rigidity of the soft parts. In a case of this kind we should do a classical section instead of a forceps delivery with its attendant shock, laceration, and possible infection. In abnormal head and posterior

positions, when we have a large non-moulding fetal head with thick cranial bones and small fontanelles, or in monsters, etc., the operation is equally indicated.

Case 5.—Mrs. D., primipara; R. O. P., at term; impacted, immovable head with occiput in hollow of sacrum; membranes ruptured; labor thirty-six hours. Forceps traction attempted, with occipito-posterior position existing two hours. Cesarean section. Both mother and child living.

Certain high and difficult medium forceps deliveries and difficult versions (as in Case 5) are eminently capital operations. They are sometimes accompanied by great danger both to mother and child and anxiety to the operator. When we deliver by the natural route, we get the still births, etc., frightful lacerations of the mother, so that some of these patients have been practically invalidated for life and have become incapable of bearing children in the future. Yet, if they were delivered by Cesarean section, you would not have such results.

Sachs says that twenty-five per cent. of idiotic children are the result of difficult labor. Suttworth states twenty-nine per cent. of idiots are due to instrumental delivery.

The writer wishes to condemn the practice of craniotomy performed on the living child in a certain class of unselected cases with infection. Deaver puts it well when arguing whether mother or child should be given first consideration. He says: "Neither the surgeon nor the accoucheur is the legal executioner."

Hirst reports seventy-four cases. Of these, thirty-five sections were performed after twelve to twenty-four hours of labor; many after repeated examinations, without antiseptic precautions, with happy results. He states that with good operative technic, in spite of hours of labor and even with an infected birth canal, Cesarean section can be performed almost with impunity.

Maxwell (*Lancet*), in an article on Cesarean section undertaken in the presence of septic infection, reports good results.

In view of these facts the family physician should shrink from killing the helpless child as well as from making the mother run an unnecessary risk of her life and health. It will depend upon him much more than upon the operator whether Cesarean section shall have any death rate or not, both as regards mother and child, according to whether they have been seriously injured or not by forceful but vain attempts at instrumental delivery. His primary principles should be cleanliness, examina-

tion of the patient in the early months of pregnancy in regard to presentation, position and posture, measurement of the pelvis, determining the condition of the soft parts, so that anything pointing to obstructed labor may be recognized.

In view of the greatly improved results of Cesarean section at the present day and its superiority over competing methods for preserving the lives of both mother and child, as confirmed by the eminent authorities I have quoted, it is clear that Cesarean section *even in infected cases* is the only logical operation to which the obstetrician should have recourse.

4201 Ft. Hamilton Parkway.

### A NEW SELF-RETAINING FEMALE CATHETER.

By JAMES ALLMOND DAY, M.D., Jacksonville, Ill.

I have recently devised a self-retaining female catheter which has proved quite serviceable and satisfactory to me in the treatment of cases of vesicovaginal fistula. On account of its simplicity of construction and application I consider that such a

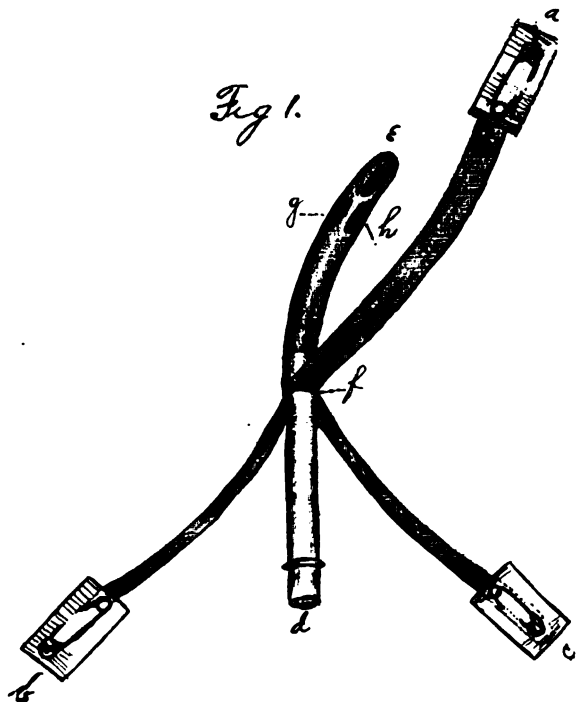


FIG. 1.

catheter will be of service to the surgeon in all cases where continuous drainage of the female bladder is necessary.

The catheter is made and applied as follows: An ordinary soft rubber elastic male catheter of suitable size is split in two equal portions for two-

thirds of its length, from its open end toward the eye end. Then one of these is again split into two equal portions. This divides the lower end of the catheter into three strips which serve as straps for holding the instrument in place.

A small glass drainage tube (d in Fig. 1) is then inserted in the split end of the rubber catheter (e) at the point where it trifurcates (f in Fig. 1).

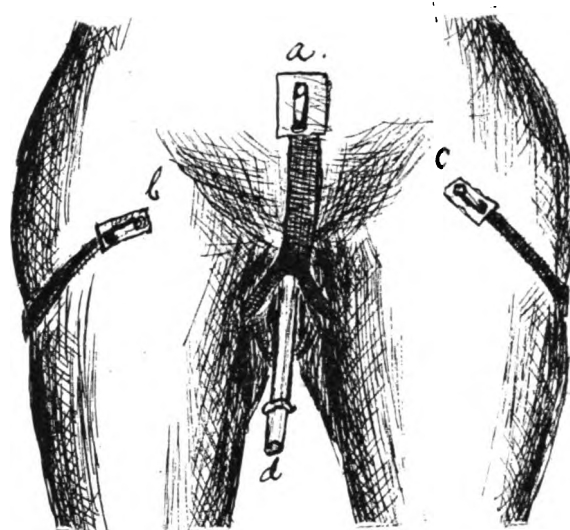


FIG. 2.

The split portions are then cut to proper lengths and strips of adhesive plaster are pinned to their extreme ends, as seen in Fig. 1 at points designated by a, b, and c. Two additional openings are cut in the eye end of the catheter at the points g and h to facilitate better drainage.

The soft rubber portion (e) is then inserted into the bladder clear up to the point where the glass tube enters (f in Fig. 1). The rubber strip (a) is now drawn tightly over the pubes and fixed to the skin (a in Fig. 2). The smaller strips (b and c) are drawn tightly around the thighs from behind forward and also attached to the skin in front (b and c in Fig. 2).

Gauze sponges are placed between the rubber strips and the vulva as well as over the top of and around the glass tube. A perineal binder in which a hole has been cut so as to admit the glass drainage tube is then brought over the vulva and drawn tightly.

An additional rubber drainage tube can be attached to the glass tube (d) if desired, or an ordinary glass male urinal can be placed between the legs to catch the urine as it drains away.

The patient's bed should be slightly elevated at the head so as to further facilitate drainage.



PUBLISHED

BY THE

## International Journal of Surgery Co.

FRANK C. LEWIS, M.D., Managing Editor.

100 William St.—Woodbridge Building.

NEW YORK, N. Y., U. S. A.

To whom all communications intended for the Editor, original contributions, exchanges, books for review, as well as communications relating to the business of the Journal, should be addressed.

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Editorial Department

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NEW YORK, MAY, 1912

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## YEAST IN EXTERNAL INFECTIONS.

In the evolution of therapy the prominent thought controls methods of treatment. When the infected sloughing sinus, post-operative or traumatic, was considered of vascular pathology, poultices and hot stupes were applied, thinking to aid through the blood supply. With the discovery of antiseptics major importance was attached to them and relief was attempted through irrigation with carbolic, bichloride and other solutions, which in the laboratory inhibited germ life on the thread. Practically little, if any, benefit has been obtained from these. Conditions in the wound are radically different from those studied in the laboratory; there is penetration of germs to the depths of tissues, where, more than on the surface, the slow and imperfect diffusion of antiseptic solutions, into the interstices of the wound, prevents their action upon the active germ.

Although the value of yeast in the treatment of traumatic sloughs has long been known its simplicity has left it out of the personal pharmacopeia of the active surgeon. From time to time it has come into favor, but its action not being comprehended, failure to apply it properly has led to subsequent neglect. The yeast plant is but one grade higher in the scale of life than the pathogenic microorganisms. Consequently it possesses much of the life history of the latter, but with a greater tenacity for life and larger power for appropriating oxygen and nourishment from surrounding tissues. It has long been known that two plants of similar nature are prone to crowd each other in the fight for

life, and the stronger survives. The yeast plant, like the microbe, possesses proteolytic enzymes, secretes an acid (lactic) and lives on oxygen. Page's experiments (*Archives of Internal Medicine*, January, 1911) are based on a thought of Schiotz, that the diphtheria germ cannot exist in the presence of streptococcus pyogenes aureus. Diphtheria existing as a throat lesion can be as quickly controlled by suspensions of streptococcus pyogenes aureus sprayed on the naso-pharynx as after the injection of anti-toxin. So in infectious wounds, the proper application of the yeast plant may, and often does, lead to the substitution of the yeast germ for the pathogenic microbe, with cessation of sloughing, the appearance of granulation and the disappearance of the toxemia incident.

This is well shown in the following case:

Mr. B. C., hepatic colic five years ago. Recurrence at irregular intervals since; jaundice but once which was at the first attack. Much emaciated and weakened. Urine analysis showed four per cent. sugar. Diabetic condition has been known to exist for six years. On account of continued gallstone indisposition, anorexia, flatulence, occasional vomiting, as well as constant pain in the region of the gallbladder, and from inability to follow his occupation, it was deemed wise to operate in spite of his diabetes.

On November 20th cholecystectomy. Gallbladder removed because of advanced fibrosis, being thoroughly contracted and containing calculi. There was pericystitis running up into the parenchyma of the liver, and a thick fleshy cord attached the viscus to the greater curvature of the stomach about five cm. from the pylorus. The wound was closed with drainage.

About the fifth day after operation the tube was removed, to be soon followed by infection of the wound. It became gangrenous, rapidly enlarging; the discharge was foul, the patient showing evidence of sepsis, stupor, apathy, general muscular relaxation. The wound was irrigated with bichloride solution, no benefit; then came frequent irrigations with one per cent. iodine solutions, still no change in appearance. Remembering Page's success with substitution and feeling that the diabetic condition was largely responsible for the rapid growth of the germs a suspension of yeast plant was thought of. This was made by mixing Fleischman's yeast with sterile water. Every four hours through a catheter the wound was irrigated and allowed to remain full after irrigation. The local process immediately subsided. In forty-eight hours granulations appeared, the typhoid (?) state disappeared and recovery was soon completed.

The case just cited was the first one in which suspension of yeast plant was used. Its extreme and prompt effectiveness has led to its application in all similar cases occurring since. I have now accumulated a large experience with this form of treatment, which in the mind of the writer and those who have used it in Christ Hospital thoroughly justifies its advocacy. G. K. DICKINSON, M.D.

### THE DIAGNOSIS OF ECTOPIC PREGNANCY.

In considering the symptoms and the diagnosis of ectopic pregnancy it should be remembered that we may have to do with several distinct conditions. 1. It is a pregnancy and the phenomena of pregnancy are the symptoms present. 2. It exists within the tube as a mass and often causes disturbances by its position and size. 3. The various terminations of the tubal pregnancy may give rise to different pathological conditions and different symptoms. For this reason it is useful to consider in what proportion the various symptoms occur in four thousand cases which I have collected from the literature, where the symptoms were noted.

The majority of patients are multipara, and having experienced pregnancy before believe that they know when they are in that condition. This statement is of considerable value in the diagnosis. In about thirty per cent. of the cases congestion of Montgomery's follicles and other breast changes may be seen. This may take the form of swelling and congestion, later tingling, or the primary aureola may be present. Milk is found in the breasts in about one-third of all cases; this is dependent very much upon the duration of the pregnancy. Nausea or vomiting occur in more than one-third of all cases.

Amenorrhea followed by uterine hemorrhage is the most constant symptom. Missing one menstruation is the common course. Seventy-four per cent. of these cases missed one menstruation; nine per cent. had symptoms on the day the period was expected, and the remainder had hemorrhage in the inter-menstrual interval, or the operation occurred before the expected menstruation was due. The average duration of amenorrhea in these collected cases was until the fortieth day after the last menstrual period. About ten per cent. of the cases missed two periods. The great majority of them missed only one period and hemorrhage came on before the next menstruation. During the period of amenorrhea, pain is seldom a marked factor, although in about thirty per cent. vague pelvic pains were noted while the tubal pregnancy was intact.

The uterus is commonly enlarged and softened due to the formation of a uterine decidua, and the color and consistency of the cervix are frequently changed. In three per cent. of the cases the decidua was passed as a cast, and in sixteen per cent. it was noted as the passage of "shreds," "pieces of flesh," etc.

Until the hemorrhage begins, the symptoms are due to the growing ovum and are not marked, but after hemorrhage takes place, they are caused secondarily by the traumatic or inflammatory lesions due to rupture of the sac, peritoneal irritation from extravasated blood and collapse.

Uterine hemorrhage is the most characteristic symptom of tubal pregnancy; it occurs in eighty-five per cent. of all cases. The cases in which it does not occur are usually those with early operation before rupture of the sac. The hemorrhage comes on at an average on the fortieth day and continues without intermission in the great majority of cases. It is interrupted in one case to twelve in which it is uninterrupted. When it occurs day after day in small amounts and is dry powdery red in color, it is so characteristic as to be almost pathognomonic. The onset of bleeding is usually associated simultaneously with the onset of pain. This is believed to be due in most cases to intra-mural rupture which is followed later by extra-tubal or intra-tubal rupture (tubal abortion). In ninety per cent. of the cases there was simultaneous onset of bleeding and pain. In five per cent. pain was followed by bleeding, while in five per cent. there was pain and indisposition without hemorrhage. Most of these latter cases were those coming to operation for rupture of the sac.

The character of the pain in tubal pregnancy conforms to certain rules. It is in the lower abdomen, usually upon the affected side in about sixty per cent. of the cases. It is general over the whole lower abdomen in about thirty per cent. The pain is variously described as "cramp-like," "cutting," "colicky" and "knife-like." It is periodic and also paroxysmal, sudden and severe; and is frequently followed by shock, fainting, or collapse. The pain is due to peritoneal irritation from extravasation of blood from rupture or tubal abortion. It is periodic because intra-tubal rupture is associated with repeated small hemorrhages which distend the tube, and the leaking of blood upon the peritoneal surface causes intense pain similar to that due to the sudden rupture of intra-abdominal abscess or secondary hemorrhage. It is paroxysmal in character, and is similar to pain from intestinal peristalsis in other peritoneal irritations. In rupture, the bleeding is more profuse and the blood is

extravasated more rapidly, so the pain is more severe and the shock and collapse more marked. In tubal abortion with gradual bleeding, the pain is usually more persistent and apt to recur; the return of the paroxysm may be several times a day and the character of the pain is periodic and crampy at these times.

The first onset of pelvic pain is usually associated with or followed by shock and collapse of varying degree. This may be due to weakness from hemorrhage or to shock and nervous collapse. In about one-half of the cases this syncope was due to hemorrhage, and in about one-half of nervous origin from peritoneal irritation. The same type of collapse is seen in the sudden filling of the peritoneal cavity in secondary hemorrhage. This shock usually occurs once, but cases are reported in which it has been repeated in a moderate degree.

With the onset of pain and uterine hemorrhage, there is immediate alteration in the pulse rate. It is usually increased and is often of a thready character associated with shock. The pulse rate in the cases analyzed is divided into three almost equal divisions. In one-third of the cases the pulse was in the neighborhood of 96; one-third 110 or over; and one-third 120 or over; so it may be said that the pulse is usually increased in rate when the patient is first seen, and in two-thirds of the cases it is above 110.

The temperature is usually slightly increased in degree. It is quite often subnormal at the time of the first acute pain and symptoms of intra- or extra-tubal rupture, but soon becomes slightly febrile. In about one-half the cases, it is above 100 degrees and seldom higher than 102 degrees. The hemoglobin is usually slightly decreased in amount; it is slightly higher than seventy per cent., and rarely lower than thirty per cent. The average hemoglobin finding where it was noted in these cases was forty-nine per cent.

There are sometimes signs of pelvic peritoneal irritation. This takes the form of a desire to strain after defecation and a feeling of inability to empty the bowels. Dysuria and frequency of urination also occur. Either one of these symptoms was present in about forty per cent. of cases.

Examination of the abdomen before rupture seldom shows any tenderness, but after the onset of uterine hemorrhage and pain attending the termination of the pregnancy, tenderness over the lower abdomen is almost invariably present. This is usually most marked upon the side upon which the pregnancy occurs. These symptoms are associated with rigidity when there is sufficient peritoneal inflammation and extravasation of blood. If the

amount effused is considerable there may be some distention in the lower part of the abdomen. Tympany is not uncommon in primary intra-peritoneal rupture with marked hemorrhage. There may be superficial dulness on percussion over the pubis and in either flank, with a resonant note on deeper percussion. A thrill may sometimes occur in the stomach region, although no sign of fluctuation can be felt. On turning the patient over dulness in the flanks may persist, but gradually disappear in a way which is characteristic of effusion of blood. On vaginal examination, the mucosa is slightly congested, but not to as marked degree as found in normal pregnancy. Movement of the uterus often causes pain due to the presence of inflammation and adhesions; a mass is usually felt to one or other side of the uterus. If the pregnancy is uninterrupted, the tube containing it usually prolapses into the cul de sac of Douglas; if rupture has taken place, the blood seeks the lowest place and forms an hematocoele in the same situation. The consistency of the mass is doughy and it can be indented with the examining finger. There is usually considerable tenderness. The situation of the mass and its size may be altered by the amount of the extravasation of the blood and the direction which it takes. If the mass is large the uterus is usually displaced towards the normal side.

The diagnosis of ectopic pregnancy is based upon relation of the history and physical examination. It is not difficult in eighty-five per cent. of the cases; difficult in ten per cent., and almost impossible in five per cent. With a definite history of a lesion in the pelvis as shown by pain and symptoms referable to the genitalia, with a history of amenorrhea followed by an uninterrupted slight hemorrhage of a dark powdery red character, paroxysmal periodic pelvic pain with an increase in the pulse rate, abdominal tenderness, and a doughy mass beside the uterus, the diagnosis should be exact. Changes in the uterus, lessened hemoglobin, congestive changes in the breasts, distention of the abdomen, and alteration in the consistency of the cervix bring corroborative evidence of value, and with a history of a missed menstruation, followed by pain and uninterrupted uterine hemorrhage with simultaneous onset and of a character different from the last menstruation, ectopic pregnancy should be suspected. The most constant symptoms are amenorrhea followed by the simultaneous onset of pelvic pain and uterine hemorrhage. The cases difficult to diagnose are mostly those of long standing where the hematocoele is infected and the diagnosis to be exact should be infected hematocoele.

ELLICE McDONALD, M.D.

## THE RELATION OF ARREST OF DEVELOPMENT TO GYNECOLOGY AND OBSTETRICS.

Arrest of development has long been recognized as a factor in various abnormalities and diseases in medicine. There has gradually grown up a broadening of the concept of its relations to medicine. In an article entitled "Hereditary Hypoplasia, etc." (*Jour. A. M. A.*, Feb. 13, 1909), and another entitled "The Law of Degeneracy in Its Relation to Medicine" (*N. Y. Med. Jour.*, Dec. 24, 1910), the writer drew attention to what he conceived to be the fact that the relations of arrests of development, or degeneration, were not only much more general in their bearing upon disease but were the fundamental factors in most diseases.

Pediatrists and neurologists in dealing with arrests of development in their relation to their respective specialities have gradually broadened their concept of the nature of infantilism, both as to the body as a whole and the mentality, until there has arisen the concept of infantilism manifesting itself merely in a lowering of the vitality of the individual, and not apparent in his morphology, as indicated by the term "asthenia universalis congenita." (Ref.) This concept is analogous to that of developmental hypoplasia as advanced by me.

The work of experimental teratologists—Roux, Férè, Wilson, Stockard, not to mention others—affords the biologic evidence from the experimental standpoint of the soundness of the above concept. Ballentyne in his monumental work, "Ante-Natal Pathology," has collected the evidence afforded by experimental teratology and the carefully recorded and analyzed clinical experience, and has shown that terata-monsters and abnormalities and fetal diseases are due to identical causes. That is, abnormal environment, or otherwise pathogenic agencies, or protoplasmic poisons, can and do cause all of the varieties of monsters, abnormalities and fetal diseases. Likewise he has clearly pointed out that ordinarily the results of the action of protoplasmic poisons upon the growing organism are in general the same—arrested development; and that in particular, or specifically, the results are different, the difference depending upon the period in the development of the growing organism when the abnormal environment is operative. Thus when the primitive ova or the primordial germ cells and the unripe ova and spermatozoa are exposed to the influence of protoplasmic poisons circulating in the maternal or paternal blood, their development is arrested either absolutely or relatively. Maturation

is prevented or becomes imperfect, with the result of either sterility or an imperfect (defective) impregnated ovum. During the germinal period the same agencies produce either monsters or gross abnormalities. During the embryonal period when the physiology of the organism is organo-genesis, they produce malformed organs, or monstrosities, or gross abnormalities. During the fetal period when the physiology of the organism is two-fold, growth and function, analogous to that of post-natal life, the result may be two-fold, either abnormalities or fetal disease. The same principles are equally applicable to the period of post-natal existence. Physiology is two-fold, growth and function, and the result of the action of pathogenic agencies upon the developing infant, child and adolescent, etc., is arrested development, and, also, when the pathogenic agencies are sufficient in degree, disease. Thus, in general, there is arrest of development, and, in particular, the consequences of the action of unfavorable environment depend upon the nature of function at the particular time when the bad environment is operative. The particular result of the influence of abnormal environment during the developmental period in post-natal life—and this is true of slight poisoning during the fetal period—is the production of hypoplasia which is the biologic state of these individuals suffering from arrest. They are characterized by a relative lack of vitality or fetal energy and their organs and cells functionate atypically. They are examples of infantilism considered broadly. Each of these individuals is his own normal, each is a degenerate variety, and when not subjected to the influence of pathogenic agencies, although his functions are atypical, they are normal for him; such are psychopathic and neuropathic or neurotic or diathetic individuals.

Arrests may be particular rather than general, these depending upon the period of development when the protoplasmic poisons affect the organism. The particular organs or systems being the active agent or developing most rapidly are more profoundly affected than those which have already developed or develop when the unfavorable factor is no longer operative. Hence arise particular arrests leading to diatheses from environmental causes. These particular arrests may also be due to the "selective" action of particular poisons, for example, that of lead for the nervous system.

It has long been recognized that each of these conditions may be brought about by defects in the germ plasm whereby general arrest or particular arrests are caused. That which is relatively novel, and therefore less well appreciated by the profes-

sion, is the fact that each and all of these arrests may be brought about through disease of the parents, and more especially by disease of the mother during pregnancy, and that the lesser arrests may arise during post-natal life through bad environment. These individuals never become adults. They are relatively neuters, the secondary sexual characters never fully developing; likewise they are all characterized by varying degrees of lack in vitality or vital energy.

The application of these biologic principles to gynecology and obstetrics is far reaching. Chlorosis, delayed puberty, dysmenorrhea of the so-called nervous type, abnormal mentality, lowered vitality, and neurotic manifestations are the direct consequences of arrested development. Displacements, not only of the sexual organs, but also the visceral ptoses, have the same origin. The ptoses are in part real and in part apparent, as many instances of so-called visceral ptoses are merely examples of the persistence of the position of those organs normal to the fetus or child—arrested development. The ptoses arise in individuals of normal development when through the incidences of disease there follows lowered vitality, with its resultant loss of tonicity of the supporting structures of the various viscera. Here the conditions (degeneracy) are acutely acquired through the action of pathogenic agencies on a normal adult organism. Particular arrests are the explanation of the various complications in gynecological cases, such as the neuroses and such so-called functional diseases as nervous indigestion, etc. Subnormal vitality, with its associated lack of tonicity in the structures of the body, serves to explain many other conditions, such as obstipation, abnormal poise of the body, whereby through the altered relation of bony structures, more especially of the spinal column, they are unequal to the undue strain upon certain ligamentous structures; these being deficient in vitality or tonicity are physiologically incapable of doing their work. And owing to an associated defective and therefore atypical functioning nervous system, there arise the numerous aches from which such women suffer. The actual condition from which they suffer is the biologic state of arrested development or degeneracy, and the particular expression is merely symptomatic of the underlying condition; that is, the ptoses and the various neurotic aches are not morbid entities but bear the same relation to the underlying or actual condition as a cough does to a bronchitis. The relations of arrest of development to tumors including cancer are not so demonstrable. It is clear that all tumors due to

"rests" in accordance with the theory of Cohnheim are likewise due to arrests of development.

Experimental teratology in demonstrating the delicacy of the reactions of the growing germ and the cells of the developing organs, excitants or poisons, indicates that such tumors as are not due to the "rests" result from abnormal activation or incitement to growth of cells by protoplasmic poisons.

The relations of arrested development or degeneracy to obstetrics are even more important and striking than is true of gynecology. The hypoplastic woman, whether her development hypoplasia or degeneracy be due to defects in the germ plasm or to the influence of pathogenic agencies, otherwise protoplasmic poisons upon the growing organism, when she becomes pregnant functions atypically with reference to the new function of developing a new organism, as well as in the reactions between her sexual apparatus and her body as a whole. Hence arise the disorders of pregnancy and labor. The important relations of arrests of development to hyperemesis gravidarum and puerperal eclampsia at once become apparent and find their explanation in the influence of degeneracy upon the functioning of the ductless glands. The hypoplastic female who in the current terminology is a neurotic or a frail, delicate woman, has a painful labor, her pains are ineffective and she becomes exhausted. As her nervous system is hypoplastic and as the musculature of her uterus is hypoplastic, the innervation of the uterus is imperfect, and the uterus is incapable of developing the energy necessary to expel the fetus; hence, she becomes exhausted and requires artificial assistance. As her cervix and her pelvic floor are hypoplastic, lacerations naturally result. As her vitality or vital resistance or natural immunity is subnormal she is relatively more liable to infection, and after this painful and exhausting experience she usually develops neurasthenia, and when she recovers, the atonic condition of the ligaments of the uterus now suffering from subinvolution, and having their vitality further reduced by disease, becomes still more atonic and she develops ptoses of the sexual organs as well as of the viscera. Likewise all the bony deformities are due to arrests of development, so that the difficulties in labor thus find their explanation.

At the present time the writer is engaged upon a research as to the further application of these principles to disease in general, whereby shall arise a biologic concept as distinguished from the current medical concept of disease.

CHARLES P. NOBLE, M.D.

## Department of Railway Surgery

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### A PLEA FOR IMPROVING THE PREVAILING CHARACTER OF EXPERT TESTIMONY.

BY EMERY MARVEL, M. D., ATLANTIC CITY, N. J.

The purpose for which expert testimony is required is to elucidate more clearly such facts and conditions as are either difficult to understand or even impossible of comprehension without the aid of some special qualification for the interpretation. Special qualification is attained by definite preparatory study, unusual and extensive practical experience, and by repeated application of the acquired knowledge. The medical witness, i. e., one whose duty it is to properly interpret matters pertaining to medicine and surgery, prepares himself by a special course of study in medicine and surgery, by definite clinical observation, and by experience gained in the practice of his profession. It may be assumed other factors being equal, that through better preparedness and the better understanding possessed by the witness the full purpose is more nearly attained in the evidence offered. If the following principles were the only motive for testifying, then ideal conditions would obtain—that is, if the object of every expert witness were to present as clear an understanding as is possible for him to give of the matter concerning which he is testifying, irrespective of what side of the controversy he may have been called to testify on, or uninfluenced by any prejudice he may himself entertain, then his testimony would realize most completely its purpose. Is this the prevailing character of expert medical testimony? I fear not.

Too often is it evident that the physician permits himself to offer testimony purporting to be expert in character, when in reality what he presents serves to confuse the court, if not himself, more than to clarify the understanding. This is occasioned oftentimes by a lack of appreciation of the necessity for preparedness. When an expert assumes to know, he must be ready to explain what he has assumed to know, not only for his own understanding, but for the understanding of those to whom he is testifying. His explanation should be concise, clear and above all free from sentiment or bias. To

do this he must know, as well as assume to know, the facts and conditions concerning which he testifies. A defect in preparation results in defective information that is capable of clouding the understanding, inducing erroneous conclusions on the part of those rendering a decision, imposing procrastination in the proceedings, incurring additional expense upon the community, and in the end defeating justice in its application. Such testimony robs us of the respect we desire and deserve, for by the giving of such evidence the profession is judged to be indefinite, uncertain, and negligent, instead of possessing caution, definiteness, and assurance.

Whatever may be the evils of unpreparedness in giving expert testimony, such is incomparable to the evils of prejudiced and biased testimony. It is the testifying in accordance with preferred wishes for a decision in favor of the contention—a prejudice influenced by sentiment, affiliation or even compensation—that most defeats the purpose for which expert testimony is intended. Whatever may be the preference in the controversy, the testimony should be fully removed from it. Facts and opinions concerning facts must be considered as if no other knowledge except those special facts and conditions existed. To testify with the understanding that the compensation for the service will be contingent upon the litigant winning the contest is almost certain to formulate bias opinions and also to inspire undue interest in favor of the side engaging the witness. That witnesses sometimes testify under these influences illustrates the existence of an evil worthy of mention only to demand its removal in order to effect an improvement in the prevailing character of expert medical testimony.

Damage and murder trials are the most common cases requiring medical expert testimony. When efforts are being made to recover damages for alleged injury it is desirable to show, not only the extent of the injury, but also its immediate and remote sequence. In order to estimate the value of damages sustained by the injured due to anticipated incapacity or sufferings, or both, the court needs to consider the opinion of the medical witness. It is the right of the litigant to furnish an unlimited number of witnesses, provided their testimony is relevant to the case. The stakes for which the contest is waged implies an effort upon the part of each contestant to secure testimony favoring the cause. The litigant assumes it to be his right to know the character of the evidence to be given before engaging the witness. He, therefore, endeavors to obtain witnesses who will testify most favor-

ably for his contention. This being the privilege of both litigants—and equally desirable to each—the practice is to line up two combinations of opposing medical witnesses: Those selected by the plaintiff testifying to support the contention of the plaintiff; those selected by the defendant testifying equally forcibly in support of the defendant's contention. It is quite possible that two witnesses can honestly testify to opposing opinions; but when one witness will testify to-day to an opinion favoring a certain contention, and, with similar if not identical conditions from which to deduce his conclusions, the same witness will subsequently testify to an absolutely adverse opinion, it leaves a grave doubt as to the witness's honesty of purpose and invites suspicion of ulterior motives actuating his testimony. Is there any wonder under circumstances of this kind that medical expert testimony suffers ridicule and brings upon itself accusations most uncomplimentary? It is the too prevalent custom to use and abuse medical testimony in this manner that supports, if not justifies, a common accusation that medical evidence is a commodity of hire.

It is alleged by those familiar with the conditions of the courts that there exist—available to most every court of trial—certain graduates of medicine known as "expert witnesses," whose testimony can be secured by, and possibly shaped in conformity with, either side to the controversy. If this be true—and I am not prepared to deny it—it is a smirch upon the escutcheon of the medical profession. As if there could be any defence for the existence of such agents, it is claimed that organized capital controls, under the obligation of constant engagement in official positions, graduates of medicine who will always testify in favor of their official affiliation. I do not mention this allegation to affirm or deny its existence, but inferentially there is too often apparent evidence to support it. It is not so common to observe upon the witness stand a physician or surgeon testifying to an opinion most strongly favoring contentions the benefits of which will go to those from whom the witness enjoys continuous compensation. One may under such circumstances be unprejudiced in his testimony, but that it is unbiased is difficult to conceive. It is at least indelicate and invites unfavorable comment upon the members of the profession to which the witness belongs. Attempts to justify the existence of the professional medical expert (for such he is justly called) are not wanting in the allegation that such an agent is the product of necessity, occasioned by the testimony offered through the official

medical graduate who is in the constant employ of corporations. Again, neither is the contra-allegation wanting, that the necessity has arisen through the existence of the professional medical expert for medical men to be in constant service to oppose his adverse influence upon the corporation. As to which of these factors is cause and which is effect, we are not prepared to assert, nor is it relevant here. Of this we are certain, they are both in the capacity of giving expert medical testimony inimical to the principles governing the purpose of expert testimony, and should be discountenanced.

Murder trials, especially when the accused belongs to a family possessed of influence and large financial means, offer extensive opportunity for the prostitution of expert medical testimony. Prominent trials in recent years have had much influence upon the lay mind in discountenancing the sincerity of the medical witness. The daily press has been liberal in criticising the honesty of the evidence. When a professional alienist testifies to the irresponsibility for the act of murder upon the part of the accused, which opinion is declared from the collected reports of the actions the accused committed for a period of time preceding the alleged crime, and then within a period of a few months testifies with equal effort that the same accused is perfectly sane and responsible and hence worthy of freedom, some foundation, it would seem, is afforded for the criticism of the press and the loss of respect by the public for expert medical testimony. Especially is this true when the witness offering so inconsistent evidence, himself holds a prominent official State position. The opportunity that brings such evils into existence is the custom by which medical testimony is obtained. The possibility of injecting any opinion under the guise of expert testimony, provided the opinion is relevant to the case at trial, invites with the golden bait misleading, absurd, dangerous and justice-defeating testimony. In such cases it would sometimes seem that it is not a matter of opinion, but what words the witness may use to make his efforts of service most valuable to him who pays for the service. It is not the court which the witness in such practice serves, but the prejudicial interest of one party to the controversy.

In conclusion the following points are worthy of consideration: The unpreparedness of medical witnesses. The existence of a professional expert whose opinion is moulded in conformity with the needs of the litigant by whom he is engaged. Presumptive expert testimony bearing evidence that favors the



litigant upon whom the witness depends for salary or office. Expert testimony given under the contingency of win—pay; lose—no pay. Able witnesses prepared to advocate the trial as well as to give expert testimony, whose efforts result in evidence fortified in one side's interest. All these evils deserve an effort for correction and invite his plea for improving the prevailing character of expert medical testimony.

### **PENNSYLVANIA RAILWAY SURGEONS' ASSOCIATION, LINES EAST OF PITTSBURG.**

We are informed by Dr. Spencer M. Free, Chairman of the Scientific Program Committee, that the papers to be presented at the forthcoming meeting of this Association, at Atlantic City, May 31st and June 1st, include: Addresses by Dr. John B. Murphy, of Chicago, and Dr. J. William White, of Philadelphia (subject not yet announced). Dr. J. C. Bloodgood, of Baltimore, on "Traumatic Shock, and the Employment of Blood Pressure Estimation in its Prevention and Treatment." Dr. Wainwright, Chief Surgeon of the D., L. & W., of Scranton, Pa., on "The Reduction of Cancer Mortality." Dr. H. T. A. Lemon, of Washington, on "Depressed Fracture of the Malar Bone." Dr. M. Clinton, of Buffalo, on "Traumatic Shock." Dr. Geo. P. Muller, of Philadelphia, on "Infection and Immunity." Dr. J. M. Wells, of Trenton, on "Surgical Shock." Dr. Kingsbury, of Nanticoke, on "Little vs. Much Technique and Apparatus in Bone Surgery." Dr. S. L. McCurdy, of Pittsburgh, on "The Treatment of Old, Ununited and Deforming Fractures." Dr. Walter Lathrop, of Hazelton, Pa., on "The Surgical Importance of Early Diagnosis." Dr. H. Edwin Lewis, of New York, on "Some Newer Ideas in Wound Healing." S. B. Lloyd, Esq., on "The Relation of the Railway Surgeons to the Legal Department." Dr. O. C. Gaub, of Pittsburgh (subject not yet announced).

The excellence of this preliminary program speaks for itself and every member of this Association will find it to his advantage to be present.

## **Book Notices**

**MURPHY'S CLINICS.** Issued Serially; One Number Every Other Month, Six Numbers a Year. Per Year \$8.00. Philadelphia: W. B. Saunders Co., 1912.

One always likes to listen to Dr. Murphy's teaching. He says something practical and much that is new.

The first numbers of the "Clinics" are delightful reading. The cases are all interesting and cover a wide field. We were especially pleased with the clinics on "Salvarsan," "Duodenal Ulcer," "Hydrops," "Arthritis of the Wrist," and "Blood Clot in the Bladder." In fact, the cases are so intensely interesting that we are left unsatisfied—we would like to know more about them. In each clinic, Dr. Murphy discusses subjects, more or less related to the one in hand, and often seems to wander too far afield. Not that we object to these wanderings, for in them he says many good things, but he sometimes does not come back, he does not tell us enough about the case itself. His occasional remarks about what he is doing while operating may make the procedure plain to the onlooker, but the reader is often left in the dark as to just what the operator has done and how he has done it. In the case of "Arthritis of Wrist" he merely tells us the remedy injected. We wish he had told whether any other subsequent treatment was used (splint? massage?).

Then we would like to know something about the results of these operations. We feel as we do when we read an exciting continued story; we are anxious to learn whether there is a happy ending. Will not Dr. Murphy gratify our curiosity and tell us about the after history of some of these cases? May we suggest that these cases be numbered consecutively throughout the year and that they be referred to briefly in subsequent numbers?

However, the "Clinics" have much to commend and are well worth reading. The publishers are doing something which will be of great benefit to surgeons the world over, by placing the clinics of Dr. Murphy within the reach of all—A. W. C.

**Electricity in the Treatment of Goitre.**—Potts says in his work on electricity (Lea & Febiger, Publishers, Phila.) that in the treatment of goitre either percutaneous galvanism, with or without cataphoresis, electrolysis, or both combined, may be employed. In the former method rather large electrodes should be placed, one on each side of the gland, and a constant current of 5 or more milliamperes passed for fifteen minutes every other day. If the growth is very large, a good sized electrode so made that it will closely conform to the surface of the gland should be used, while the other is placed on the back; by this method currents of 25 milliamperes or more may be used. The kathode should be made the active electrode. In using this method, cataphoresis can also be utilized, by wetting the negative electrode with Lugol's solution (iodine being electronegative, seeks the anode). If electrolysis is used, a strong, sharp, sterilized needle, which may be either smoothly insulated with shellac to within a short distance of the end or not insulated, is introduced for an inch or more into the growth; it is then connected with the negative pole, the positive being placed on an indifferent point, and a current of from 10 to 20 milliamperes passed for ten minutes. The skin may be previously anesthetized by freezing with ethyl chloride. This may be repeated twice a week if necessary, and percutaneous galvanization, as above described, can be used during the interim. Electrolysis is especially valuable in cystic goitre; in these growths the contents of the cyst should be evacuated after the operation. Excellent results, especially in small tumors, may be obtained by these methods.

**Cancer of the Gallbladder.**—Cancer of the gallbladder, usually due to stone, is characterized, aside from the symptoms of this latter condition, by nodular tumor in the gallbladder region. Diagnosis, says Martin (Surgical Diagnosis, Lea & Febiger, Publishers, Phila.) should be made by operation and before tumor becomes demonstrable.

Gallbladder cancer, secondary to infiltration of the liver, usually gives no history of stone, and is of minor moment as compared to the primary disease. In either case, if the cystic duct be occluded, acute suppurative cholecystitis, with its characteristic symptoms, may develop and mask the original lesion.

Occlusion of the common duct by cancer of the papilla cannot be distinguished from that due to stone, since it is usually secondary to this condition, except for the lack of intermittence in obstructive symptoms and the development of ascites from vein involvement. The complicating gastric disturbance, the constitutional manifestations of cholangitis, and the symptoms and signs of pancreatic involvement, are the same in both affections.

## Surgical Gleanings

**The Use of Powders in the Vagina.**—Dr. M. Nassauer (*Münch. med. Wochensch.*, No. 10-11, 1912) strongly urges the dry treatment of leucorrhea by means of the insufflation of powders. Of these bolus alba has proved the most useful, because it is an impalpable powder having high absorption power. This method of treatment has proven particularly valuable in acute gonorrhea and serves to a great extent to replace the use of tampons.

**Gynecological Diagnosis and Treatment in the Insane.**—Dr. B. S. Schultze (*Gynäk. Rundschau*, No. 1, 1912) makes a plea for thorough gynecological examination in all women presenting signs of insanity and for resort to appropriate treatment before their committal to an asylum, if possible. He refers to the excellent results of Hobbs, who during five years submitted all female patients suffering with mental disorders to gynecological examinations and, when necessary, to operative treatment, and obtained 35 per cent. more recoveries than in cases observed during the same period in which no attention was paid to any existing genital disease. The earlier the gynecological treatment was instituted at the beginning of the psychosis the more permanent the cure. For these reasons Schultze urges the need of operating rooms and the services of trained gynecologists in female insane asylums.

**Treatment of Purulent Peritonitis.**—In a report from the Surgical University Clinic of Basel Dr. Iselin (*Deut. Ztschr. f. Chir.*, Bd., 110, Hft. 4-6) remarks that prolonged application of heat to the abdomen after operations and in inflammatory conditions is of decided benefit. This is accomplished by the electric thermophore, which is employed after all the author's abdominal operations, as he feels convinced the heat stimulates the peristalsis. In inflammatory irritation of the peritoneum the heat promotes absorption and prevents intestinal atony. The best results, however, were obtained in purulent peritonitis, after the cause had been removed by operative intervention. During the operation it is of special importance to thoroughly irrigate the abdominal cavity with 0.9 per cent. saline solution at a temperature of 42 C., this being followed by adequate drainage with a tube.

**Supravaginal Amputation of the Uterus.**—Dr. R. de Bovis (*Sem. Med.*, No. 7, 1912) states that the supravaginal operation gives a somewhat lower mortality than total hysterectomy for uterine myomata. On the other hand, the latter is the more complete method, because it establishes better conditions of drainage and prevents any later development of cancer in the stump. The end results of both methods are equally good. Hence the author recommends total extirpation in cases of infection, real or suspected malignant degeneration, or large deep-seated myomata. In the other cases the supravaginal operation is preferred.

**Post-Operative Thrombosis and Embolism.**—Among 5,524 operations, including 1,720 laparotomies H. V. Klein (*Monatssch. f. Geburtsh. u. Gynäk.*, Bd. 34, Heft. 5-6) found 50 cases of thrombosis and embolism. Thrombosis was most common after abdominal operations, especially those for uterine myomata. The pelvic and femoral veins on the left side were particularly affected. Besides direct wound infection, other causes of mechanical character could be determined. The severity of the operation is an important factor.

**Peritoneal and Genital Tuberculosis in Females.**—Dr. H. Schlimpert (*Arch. f. Gynäk.*, Bd. 94, Hft. 3) in 3,514 autopsies failed to find a single case of isolated peritoneal or primary genital tuberculosis. From his observations he believes that peritoneal tuberculosis is especially caused by infection by way of the intestine or transmission of bacilli by the lymphatics of the pleura, or it may be of hematogenous origin. Ordinarily the disease is a complex process implicating other vital organs. There is no positive reason to believe that it arises secondarily from genital tuberculosis. Tuberculosis of the vagina may be an isolated condition, due to extension of the process from neighboring organs. In uterine tuberculosis the tubes are usually involved. While tuberculosis of the ovaries is rare, that of the tubes constitutes the most frequent form of genital tuberculous affections. In the author's opinion peritoneal tuberculosis causes death in a moderate percentage of cases, while the genital form can never be considered as a direct cause of death. Tuberculosis of the urinary system is never a primary isolated condition and its prognosis is worse than where the disease affects the genital tract.

**Sugar Treatment of Tuberculous Peritonitis.**—Dr. F. Kuhn (*Arch. f. klin. Chir.*, Bd. 96, Hft. 3-4) believes that after operation in this disease it is important to exert a persistent influence upon the process in the affected peritoneal cavity. This he thinks can best be done by leaving a concentrated solution of sugar in the abdominal cavity, particularly in the deeper portions, after laparotomy. The effect of this is to prevent coagulation and stimulate secretion, as well as to prevent the formation of hemolytic toxic products and protect the endothelium.

**Laparotomy for Placenta Previa.**—Dr. E. Scipiadès (*Centbl. f. Gynäk.; Wiener klin. Wochensh.*, No. 12, 1912) describes three cases of placenta previa, in all of which laparotomy had been performed with success. The first was a I-para, thirty-five years old, with a central placenta previa, who was delivered of a living child by Cesarean section. In the second case, that of a II-para, thirty-eight years old, with a total placenta previa, a supravaginal amputation of the uterus was done for myoma. The third patient, a VIII-para, forty years old, was also subjected to supravaginal amputation, the child being dead before the operation was undertaken.

**Precocious Puberty and Ovarian Tumor.**—Dr. Verebely (*Wiener klin. Wochensh.*, No. 13, 1912) reports the case of a girl, six years old, who up to five years of age had developed normally. Since a year hemorrhages had recurred monthly and other signs of puberty had appeared. The child was about four inches taller than one of a corresponding age, and the breasts, which were the size of lemons, contained glandular structure. In the axilla as well as the pubic region there was an abundant growth of hair. The labia were thick and pigmented, and the vagina of abnormal size. Examination of the abdomen revealed a nodular tumor of the size of a child's head connected with the left side of the uterus. At the operation a very vascular ovarian sarcoma was found. The uterus was of the size of that of an eighteen or nineteen year old girl, the right ovary being normal. After operation the hemorrhages ceased, the hair fell out, and the breasts receded in development. The only sign of precocious puberty left was the deeper quality of the voice. The author states that such cases are rare, and he has been able to find only 126 in the literature, in but two of which the condition was due to a tumor.

**Application of Tincture of Iodin to the Peritoneum for Tuberculous Peritonitis.**—Dr. A. Hofmann (*Münch. med. Wochensh.*, No. 10, 1912) states that painting the normal peritoneum with tincture of iodine produces a strong reaction, as shown in animal experiments by profuse transudation and adhesion. In tuberculous peritonitis the chief way in which nature effects a cure consists in hyperemia, transudation and adhesions. Simple laparotomy in this disease will alone sometimes cause hyperemia of the peritoneum, and so will hot air and the x-ray. None of these means, however, will cause so marked a degree of hyperemia as tincture of iodine. If a coil of intestine is painted with it, it speedily loses its lustre and becomes brown, but this coloration soon yields to a diffuse redness. In the dry form of peritoneal tuberculosis the application of the tincture sometimes produces a serous transudation in a few hours with subsequent formation of adhesions. While these are to be dreaded in case of normal intestine, the author regards them as harmless in tuberculous peritonitis for the reason that the curative process in this disease is always accompanied by their extensive formation. From experiments on animals and observations on patients laparotomized for tuberculous peritonitis the author felt encouraged to try applications of iodine to the parietal and visceral layers of the peritoneum in this disease with the result that the period of cure was considerably shortened. He reports four cases, in all of which recovery rapidly occurred under this treatment. The application was regularly followed even within the first forty-eight hours by a chemotactic peritonitis without any fever of tympanites, but these symptoms of irritation speedily subsided. The entire time of treatment averaged four weeks, while in cases treated in the customary way months may elapse before complete recovery occurs.

# Monthly Index of Surgery and Gynecology

- Acute Diffuse Peritonitis Resulting from a Ruptured Pyosalpinx (Tex. S. Jour. Med., Apr., 1912). W. B. Carroll, Dallas.
- Acute Perforating Gastric and Duodenal Ulcer, the Clinical Features and Treatment of (An. of Surg., Apr., 1912). E. Elliot, Jr., New York.
- Anal Fissure, the Palliative and Operative Treatment of (Bost. M. and S. Jour., Apr. 11, 1912). T. C. Hill, Boston.
- Aneurismal Varix of the Popliteal Vessels, Operation for (An. of Surg., Apr., 1912). J. C. Da Costa, Phila.
- Anterior Poliomyelitis, the Surgery of (Therap. Gaz., Apr. 15, 1912). H. A. Wilson, Philadelphia.
- Appendicitis in Unmarried Women, the Diagnosis of (Med. Her., Apr., 1912). A. E. Hertzler, Kansas City, Mo.
- Ascites Secondary to Vascular Cirrhosis of the Liver, the Surgical Treatment of (Jour. A. M. A., Apr. 13, 1912). E. A. Babler, St. Louis.
- Ascites, Surgical Treatment of (Interst. Med. Jour., Apr., 1912). J. F. Binnie, Kansas City.
- Bright's Disease, the Surgical Treatment of (South. Med. Jour., Apr., 1912). S. Lloyd, New York.
- Cancer of the Prostate (Lanc.-Clin., Apr. 20, 1912). R. C. Bryan, Richmond.
- Cancer, the Early Diagnosis of (Pa. Med. Jour., Apr., 1912). W. L. Rodman, Philadelphia.
- Cephalic Tetanus (An. of Surg. Apr., 1912). A. J. Brown, New York.
- Certain Gynecological Aspects of Neurasthenia and Hysteria (Am. Jour. Surg., Apr., 1912). E. Novak, Baltimore.
- Chronic Appendicitis and Lane's Kink (Pa. Med. Jour., Apr., 1912). W. Davis, Wilkes-Barre.
- Chronic Duodenal Ulcer, Some Observations on the Symptomatology of (Bost. M. and S. Jour., Apr. 18, 1912). H. S. Rowen, Boston.
- Chronic Ulcer or Chronic Indigestion, Its Successful Treatment by Surgical Measures; Report of 25 Cases (Bost. M. and S. Jour., Apr. 11, 1912). C. L. Scudder, Boston.
- Cleft Palate, Remarks on (Lanc.-Clin., Apr. 20, 1912). T. W. Brophy, Chicago.
- Congenital Dislocation of the Hip (Northw. Med., Apr., 1912). F. J. Fassett, Seattle, Wash.
- Congenital Malformations of the Ureters (An. of Surg., Apr., 1912). D. N. Eisendrath, Chicago.
- Congenital Stenosis of the Pylorus; the Surgical Treatment (Surg., Gyn. and Obst., Apr., 1912). C. L. Scudder, Boston.
- Decorative Surgery (Lancet, March 23, 1912). W. H. Battle, London.
- Derangements of the Knee Following Strains and Blows (Lancet, March 16, 1912). A. E. Barker, London.
- Derangement of the Knee-Joint (Northw. Med., Apr., 1912). C. F. Eikenbary, Spokane, Wash.
- Destruction of Tumors of the Urinary Bladder by a High Frequency Current Effect, Known as Desiccation (Surg., Gyn. and Obst., Apr., 1912). B. A. Thomas, Phila.
- Diagnosis of Solitary Kidney, Blocked Ureter and Kidney Inactive by Reason of Previous Disease (Bost. M. and S. Jour., Apr. 18, 1912). E. Garceau, Boston.
- Diaphragmatic Hernia Diagnosed Before Operation (Interst. Med. Jour., Apr., 1912). N. B. Carson, L. Huelsmann, St. Louis.
- Dislocation of the Hip Caused by Infectious Arthritis (Therap. Gaz., Apr. 15, 1912). J. H. Shaw, Phila.
- Dorsal Root Section in the Treatment of the Spastic State of Cerebral Diplegia, an Analysis of the Results of (N. Y. Med. Jour., Apr. 20, 1912). L. P. Clark, A. S. Taylor, New York.
- Duodenal Ulcer, Significance of the Symptoms in (Lancet, March 2, 1912). C. Mansell Moullin, London.
- Dysmenorrhea and Some Popular Errors Pertaining to it (Jour. Ia. S. M. A., Apr., 1912). C. F. Wahrer, Fort Madison, Ia.
- Ectopic Gestation, Diagnosis of (Brit. Med. Jour., March 2, 1912). R. Davies-Colley, London.
- Emergency Laparotomies, a Review of 105 (Jour. M. A. Ga., Apr., 1912). R. M. Harbin, Rome, Ga.
- Enterostomy—a Life-Saving Measure (N. Ori. M. Jour., Apr. 1912). F. W. Parham, New Orleans.
- Extension and Recurrence of Breast Cancer Through the Deep Fascia (Med. Rec., Apr. 13, 1912). L. F. Watson, Oklahoma City.
- Fracture and Dislocation of the Upper End of the Humerus (Med. Rec., Apr. 6, 1912). J. B. Bissell, New York.
- Fractures at the Elbow in Childhood, Treatment of (Am. Jour. Obst., Apr., 1912). W. F. Campbell, Brooklyn, N. Y.
- Fractures, Some Features Essential to Success in the Operative Treatment of (Lanc.-Clin., Apr. 13, 1912). W. Fuller, Chicago.
- Fractures, the Operative Treatment of (Surg., Gyn. and Obst., Apr., 1912). J. A. Blake, New York.
- Gastroenterostomy: Technic of the Operation with the Use of a New Instrument (Jour. A. M. A., March 30, 1912). A. G. Brenizer, Charlotte, N. C.
- Grave's Disease, the Operative Treatment of (Lancet, Mar. 9, 1912). W. Trotter, London.
- Gunshot Wounds of the Abdomen, Treatment of (Surg., Gyn. and Obst., Apr., 1912). F. B. Walker, Detroit.
- Habitual Dislocation (Congenital) of the Patella, a Method of Treatment of (Surg., Gyn. and Obst., Apr., 1912). G. Robertson, Dunfermline, Scotland.
- Hallux Valgus and Bunions, Further Observations on the Surgical Treatment of (N. Y. Med. Jour., Apr. 6, 1912). W. L. Keller, U. S. Army.
- Heart Wounds, Treatment of (An. of Surg., Apr., 1912). E. H. Pool, New York.
- Hernia, Why Ligate the Sac in (South. Med. Jour., Apr., 1912). H. A. Elkourie, Birmingham, Ala.
- Hip Disease, Common Deformities in, and their Treatment and Correction (Jour. Mo. S. M. A., Apr., 1912). A. O'Reilly, St. Louis.
- Imperforate Anus (Jour.-Lanc., Apr. 15, 1912). A. A. Law, Minneapolis.
- Intraperitoneal Route in Operations on the Ureters (Canad. M. A. Jour., Apr., 1912). R. E. McKechnie, Vancouver.
- Jaundice in Surgery (Tex. S. Jour. Med., Apr., 1912). C. Johnson, Fort Worth.
- Jejunostomy (Am. Jour. Med. Sc., Apr., 1912). W. J. Mayo, Rochester, Minn.
- Lymphangioma of the Fallopiian Tube (Am. Jour. Obst., Apr., 1912). A. P. Leighton, Portland, Me.
- Malignant Disease of the Testicle, and the Operation for Removal of the Ilio-lumbar Lymph Glands when Secondarily Affected or as a Precautionary Measure (Lancet, March 9, 1912). Sir Henry Morris, London.
- Medical Aspects of Surgical Diseases, or Preventive Surgery (Jour. A. M. A., March 23, 1912). J. C. Bloodgood, Baltimore.
- New Apparatus for Administering and Warming General Anesthetics and New Methods of Administration (Jour. A. M. A., March 23, 1912). R. C. Coburn, New York.
- Observations on the Thyroid Gland and its Diseases (Surg., Gyn. and Obst., Apr., 1912). C. H. Mayo, Rochester, Minn.
- Pancreas, Personal Experience with Diseases of the (N. Y. Med. Jour., March 23, 1912). J. B. Deaver, Phila.
- Pancreatic Lymphangitis (Am. Jour. Med. Sc., Apr., 1912). J. B. Deaver, D. E. Pfeiffer, Philadelphia.
- Pericecal Hernia, a Short Review of, with Report of an Apparently Unique Epicecal Hernial Sac (St. Paul Med. Jour., Apr., 1912). A. Schwyzer, St. Paul.
- Perineal Lacerations, Etiology of (N. Y. Med. Jour., Apr. 20, 1912). J. C. Edgar, New York.
- Pneumectomy: Its Possibilities (An. of Surg., Apr., 1912). S. Robinson, Boston.
- Postoperative Treatment of Prostatectomy (Therap. Gaz., Apr. 15, 1912). L. W. Bremerman, Chicago.
- Present Status of Conservative Work on the Uterus, Tubes and Ovaries (Am. Jour. Surg., Apr., 1912). C. R. Hyde, Brooklyn, N. Y.
- Prolapsus, an Operation for, Without Disturbance of Anatomic Relations and Without the Necessity for Abdominal Section (Jour. A. M. A., March 23, 1912). B. C. Hirst, Philadelphia.
- Prominent Ears (N. Y. Med. Jour., March 23, 1912). R. T. Morris, New York.
- Prostatic Obstruction (Lanc.-Clin., Apr. 20, 1912). B. Lewis, St. Louis.
- Pruritus Vulvae: Its Etiology and Treatment (Brit. Med. Jour., March 2, 1912). R. A. Gibbons, London.
- Pulmonary Thrombosis Following Surgical Operations (Jour. Ind. S. M. A., Apr., 1912). B. Van Sweringen, Fort Wayne.
- Pyosalpinx, Specific Treatment of (Med. Rec., Apr. 6, 1912). H. J. Farbach, Louisville, Ky.
- Repair of Hernia from the Peritoneal Side of the Abdominal Wall (An. of Surg., Apr., 1912). E. H. Beckman, Rochester, Minn.
- Retrobulbar Neoplasms, Rational Surgery of, with Report of a Case (Cal. S. Jour. Med., Apr., 1912). P. de Obarrio, San Francisco.
- Retroversion of the Uterus (Brit. Med. Jour., March 2, 1912). W. J. Gow, London.
- Sacculated Aneurysm, the Treatment of, by Wiring and Electrolysis (Jour. A. M. A., Apr. 13, 1912). H. A. Hare, Philadelphia.
- Significance of Blood in the Stools (Surg., Gyn. and Obst., Apr., 1912). J. M. T. Finney, Baltimore.
- Simple Fractures, Observations on the Treatment of (South. Med. Jour., Apr., 1912). D. Eve, Nashville.
- Simple Method of Making Carbon Dioxide Snow (Jour. A. M. A., Apr. 6, 1912). M. B. Ahlborn, Wilkes-Barre, Pa.
- Some Differences Between the Surgery of Children and Adults (Surg., Gyn. and Obst., Apr., 1912). C. N. Dowd, New York.
- Spinal Analgesia, a Fourth Report on Experiences with, in Reference to 2,354 Cases (Brit. Med. Jour., March 16, 1912). A. E. Barker, London.
- Strains and Dislocations of the Sacro-iliac Joints (South. Med. Jour., Apr., 1912). E. S. Hatch, New Orleans.
- Talipes Equino-Varus, the Treatment of (Lancet, March 9, 1912). E. M. Corner, London.
- Torsion of Uterine Annexa in the Hernias of Nurslings (N. Y. Med. Jour., Apr. 6, 1912). A. V. Moschowitz, New York.
- Transplantation of the Fibula. Report of a Case (Surg., Gyn. and Obst., Apr., 1912). W. R. MacAusland, B. E. Wood, Boston.
- Tuberculous Bladder (South. Med. Jour., Apr., 1912). M. O. Shivers, Colorado Springs.
- Tumors of the Male Breast (An. of Surg., Apr., 1912). J. Speese, Philadelphia.
- Typhoid Perforation and its Surgical Treatment (Jour. Ind. S. M. A., Apr., 1912). G. G. Graessle, Seymour, Ind.
- Urinary Calculi, Observations on the Surgery of (Northw. Med., Apr., 1912). G. S. Whiteside, Portland, Ore.
- Vaginal Ptoisis: Surgical Treatment of (Am. Jour. Surg., Apr., 1912). R. Elmergreen, Milwaukee.
- When Cystitis is Not Cystitis (Med. Rec., March 30, 1912). J. B. Clark, New York.

# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

JUNE, 1912

No. 6

## Original Articles

### CONSERVATION IN SURGERY.\*

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The conservation of the resources of a country, its forests, soil, productivity, water power, mines, animals, and its energy-producing forces of all kinds, is a great civic duty of the day. Equally binding upon our profession is the duty of conserving and restoring, when impaired by disease or injury, the inborn qualities and capabilities of the human body. Before condemnation it is our duty to make every effort to restore an injured organ, a damaged limb, or an impaired function, not alone from a surgical point of view, but from a socio-economic one as well. Before resorting to destructive or obliterative cures, by means of amputations, excisions and side-tracking, we should endeavor to restore the injured limb, protect the diseased organ, or tide over the disabled function in its emergency.

So brilliant are the results of operative procedures to-day, so easily and rapidly are they carried out, and so sure and certain of success are we in hitherto unapproachable surgical projects that the temptation of a dazzling surgical expedient at the expense of the patient's future is often too great for most of us to resist. But a short time ago the pleural and pericardial cavities, the great serous cavities of the body and joints, were immune from surgical attack because of the almost always fatal result of such interference. Nowadays exploration of these cavities is indicated, not only for the removal of disease or foreign bodies, but frequently for diagnostic information only. The relief following drainage of a heretofore unapproachable purulent cavity, for instance that of the skull or some of its sinuses, or the gallbladder, the ability to prevent infection, the rapidity of healing, the capability of making better looking and more ser-

viceable stumps, better technic, the great improvement in instruments and other surgical devices, together with a better knowledge of the mechanics of surgery, urge us to more radical and more precipitate surgical activity. With all the resources and advantages of modern surgery at our command it may be quite possible in our enthusiasm that we conclude too hastily to remove the seriously or problematically damaged limb, gallbladder, spleen or joint.

That we can frequently by amputation and excisions quickly and certainly avoid a set of harassing, troublesome, exasperating and destructive symptoms and often threatening death, is true. The rapid and sure relief in many of these cases seems to justify radical action. A problem, we as surgeons and physicians, who are responsible in a degree for the public good as well as the public health, have to face sooner or later after operation is the importance of the future pecuniary loss or damage to the individual or those depending upon him, as well as to the State, by the absence of certain functions, organs or limbs removed by our acts. Amputation is the greatest reproach to modern surgery. To destroy a function or to remove organs or limbs is a confession of weakness. Mutilation is a further confession of our inability to restore diseased tissues or to save what is left of injured functions. It is avoiding the problem, not solving it. Any good mechanic can amputate and turn out a satisfactory flap and obtain a neat looking and satisfactory acting local result. There is probably no easier procedure in surgery than an amputation. The method of removing a limb or disarticulation of a joint, aside from the technic, has improved only very slightly from the earliest days. All that is required is a short time to consider, a consultation or two, a proposition to the family or the sufferer, with warning of the probable results of delay and the assurance of the pretty certain local cure, to obtain consent.

The preservation of damaged tissues, organs, limbs, or impaired functions of the human body is

\*Read before the Hospital Graduates' Club, March 28th, 1912.

a much more difficult proposition. Restoration of function, without the employment of operative measures, occurs oftener than the ultimate surgical statistics as recorded would seem to indicate. Time, patience, more intimate acquaintance with problems of human physiology and pathology, better understanding of the capacity of tissues to resist destructive processes, better estimation of the local or general vitality of structures in a given human being will help to produce a better outcome in each special case. Laboratory findings, research work, and its possible eventualities should appeal to us more than the attractive, interesting and brilliant purely surgical successes. In spite of the tediousness, the harassing and disagreeable details, and the many other objections in looking after a protracted case, it is a much more satisfactory result to save a badly damaged leg or arm than to lose it even by the best surgical methods, no matter how quickly or successfully the amputation may be performed or how perfect the local effect may be.

Extirpation of a useful organ, as the breast for example, indicates in a way surgical incompetency. We are able to remove it carefully, skillfully and successfully, but we fail not only to preserve a normal organ and restore its function after it is attacked by disease, but we have destroyed every chance of further recovery—an admission of complete failure. Like a well trained fire department, which can only stop the progress of the flames by blowing up the neighboring buildings, we cure by destruction of surrounding structures. An absolute local cure may at times be fatal to life, as for instance removal of one or both legs for injury or disease may produce a successful immediate result, but cause death from shock, from exhaustion, or later from inability to recover from the antecedent morbid conditions which made operation necessary. In these conditions surgery offers no solution of the problem except destruction. A hopeless answer.

There is another plea for conservation which appeals to us. The socio-economic side presents its argument. The removal of a limb reduces the earning capacity of the individual. The amputation of a leg or an arm in a laborer means not only that the sufferer himself is reduced to poverty or crime, but it means that if he be the bread winner of a family all of those depending upon him become more or less dependent upon charity. They become a burden upon the taxpayer and the State. Economically, therefore, every amputation represents a certain amount of loss in the earning ca-

capacity of the community in which that person lives. It means a higher tax rate as well as a larger number of cripples and paupers. Surgery has failed in its duty to the State if it rushes precipitantly into mutilating operations until every effort has first been made to conserve or restore again the individual parts or functions. This object may possibly be obtained, aside from the knife, by seeking assistance from the laboratory studies and the new modern discoveries for the prevention of infection, as by the building up of the patient's resistance by the formation of anti-bodies, by the use of various sera or vaccines, or, by inhibiting bacterial growth. On the other hand, operative surgery is always to be resorted to in time to save life and health. Radical measures are always to be employed when indicated, and it is to be remembered that what might look to the lay mind like brutal and precipitate destructive activity, to the surgical intelligence may be the very highest attainment of conservation.

Conservation surgery and conservative surgery are closely interwoven, and not infrequently the most radical surgical procedures may be the most conservative and lead to conservation.

The following cases occurring in the service of the writer are cited for illustration:

Case 1. John M., twenty-four years old, railroad employee. He was injured May 29, 1907, by having his foot caught between two cars in an accident, and when brought to the hospital in an ambulance was suffering severely from shock. The injury was at the left ankle-joint; the shoe and clothing above the joint were torn and destroyed, and fragments of bone were sticking out through the torn trousers' end. Examination showed a compound comminuted fracture, with dislocation of the ankle-joint. Both malleoli were split off and the astragalus was broken in several places. The os calcis presented a stellate fracture through its body. There was a large gaping wound of the soft tissues, which were badly lacerated and filled with dirt and small fragments of bone. It extended from below the point of the inner malleolus about three inches upward. The joint was widely opened and the surfaces extensively contused. The shock from which the patient suffered was so severe that an anesthetic could not be given, but the wound was cleaned as well as possible of dirt, pieces of clothing and the fragments of bone, and the badly contused soft parts were cut away. The dislocation was reduced and drainage tubes inserted. In the next twenty-four hours the temperature and pulse rose rapidly, and

the foot became edematous and discolored. Pain and redness extended up the leg, and amputation was advised. The advice was refused, and it was determined to wait a day or two and see if gangrene might set in and a pathological amputation follow. On the day following the foot itself seemed to be about the same, but the patient's general condition was much worse. The edema had extended up the leg and symptoms of phlebitis appeared. The temperature at times was 106 degrees, the pulse going up to and remaining most of the time at 140. At the end of forty-eight hours he had a severe chill, and was told that the only chance to save his life was to have an amputation just below the knee-joint. He again refused, saying that as his livelihood depended upon his legs he would sooner take the chance of dying with the leg than to live without it. He consented to have everything else done in the way of operation except the removal of his foot and leg. Under anesthesia the wound was opened widely on both sides; all the loose fragments of bone, together with the worst looking parts of the soft tissues were removed and drainage installed through and through the ankle-joint. The tendo Achillis was sutured where it had been torn across. The other distorted and lacerated tendons crossing the joint were restored as nearly as possible to their normal condition, and the wound around the drainage tubes was packed with iodoform gauze. The circulation in the foot was found to be satisfactory. Later on innervation was also found to be normal. The subsequent course of the case was, as might be expected, troublesome and tedious. He required a good deal of attention, irrigations and postural splints, and considerable care to prevent bed sores. The treatment for his local and general condition occupied the time, thought and attention of doctors and nurses for over six months before finally the wounds and the sinuses following them were healed. He was discharged cured September 30, 1908, with a very serviceable ankle joint, with only three-quarters of an inch shortening. He is able to walk with a hardly perceptible lameness and draws full pay as a conductor on one of the trains running into the Grand Central station. I have seen him within the last few weeks, and if I did not know his history and was not more or less accountable for his present condition, I would hardly be able to believe that he had at one time such severe injuries as to compel us to tell him that he must lose either his leg or his life.

Case 2. Miss McM., aged thirty-three. June 10, 1898, she was seen in consultation because of a

small tumor in the right breast which was noticed a few weeks preceding. Examination disclosed a typical hard tumor, the size of a pigeon's egg, in the lower right quadrant, towards the middle of the breast. There was marked retraction of the nipple, but no palpable glands in the axilla. Removal of the tumor and the breast was advised and the advice accepted. The operation was carried out, including excision of all the contents of the axilla. The patient was rather thin and spare, and the edges of the wound were brought together without very much difficulty and without any extra cuts. Healing was by first intention, and the patient was discharged at the end of three weeks with no symptoms of any special interest. Five years later she appeared with a small growth in the left breast. A similar operation was performed with exactly the same results. No drainage in either operation. She made an uneventful recovery and there has been no return of the tumor anywhere else. The pathologist reported on both occasions that they were typical adeno-carcinomata. At the date of the present writing she is perfectly well and has grown much stouter and happier.

This is a case of radical surgery, extremely conservative, and illustrative of the best ideas of conservation, preserving the patient's health and life.

Case 3. W. D., lawyer, thirty-three years of age, consulted me in the fall of 1887. This gentleman had a bad tubercular family history, his father having died of consumption, as had also two sisters and a brother. Following the passage of a sound he had an acute urethritis and as a consequence an extremely painful epididymitis. This inflammation went on to suppuration, and the abscess was opened and drained. The opening closed down to a small sinus which was troublesome only because of a slight sero-purulent discharge. For years the sinus opening would close up occasionally and a cyst form, which had to be opened because of pain and tension. This would discharge for a few months at a time, then close again, and then had to be opened to relieve the pain and discomfort. For the last few years the sinus has remained closed and therefore caused him little or no discomfort. He has had purulent urine for years, which, however, does not give him any trouble. It contains tubercle bacilli, and these microbes are occasionally found in his sputa. For a long time there were well-marked nodules in his prostate. At the present date the testicle itself has almost entirely disappeared. Fortunately he was a gentleman of wealth, entirely independent in his associations, and able to choose his mode of life, etc. He lives



out of doors and is very active in all athletic pursuits. He rides, drives and travels under the most favorable conditions. He still has purulent urine with tubercle bacilli, but no frequency or pain in micturition. He is now apparently in perfectly satisfactory health. At the time of his acute state of illness after the diagnosis had been made by several specialists, he was strongly urged to have the diseased testicle removed. I opposed operative intervention because of his systemic tubercular infection, his family history, and the mental effect such an operation often has upon the patient. This case is an illustration of conservative surgery, preserving both the health and mentality of the patient.

Case 4. Mrs. J. C. H., thirty-eight years old, presented herself at the hospital December 28, 1903, for operation for cancer of the breast. She had in the right breast, situated in the lower inner quadrant, an irregular indurated tumor, flat, the size of a lemon, fluctuating at several points. It had been present nearly a year, increasing very slowly until in the past six months, when fluctuation appeared and developed rapidly. The patient gave a typical history of syphilis. She was put on anti-syphilitic treatment and the tumor disappeared slowly. In June, 1904, there was no evidence of any trouble in her breast.

This patient has been under observation off and on up to the present date. She has had an occasional suspicious skin lesion and at times has had treatment. She has been quite comfortable physically and mentally. There has been no return of any trouble in her breast, which shows no difference in its contour from its neighbor on the other side. This is a case of conservation mentally, physically, and, as far as appearances go, functionally.

Case 5. R. C. S., an infant twelve weeks old, seen first July 8, 1908. At that time a small abscess had developed over the right mental eminence. This had followed or was co-incident with a severe attack of colitis lasting about seventy-two hours. The abscess was opened and healed rapidly. A few days later a new point of infection developed over the upper portion of the crest of the right tibia. Within forty-eight hours another point of infection appeared low down in the calf muscle. During the following six months at least two dozen smaller or larger abscesses developed in various parts of this baby's body; they seemed to be deep, arising apparently from beneath the periosteum. Examination of the pus showed at first staphylococci; later on the cultures all showed the short variety of streptococci. During the summer most of the infec-

tion seemed to concentrate itself upon the right tibia, and late in August, on removing some small pieces of dead bone from one of the sinuses, it was discovered that the main portion of the bone seemed to be rotating in the forceps. All of the tibia from the epiphysis above to that below, that is, the entire shaft, came away very easily. Both joints were involved, the leg was riddled with sinuses and abscesses, while at the same time a number of abscesses were being treated in various other parts of the baby's body. Attention to the general health, diet, hygiene, etc., was continued, and by December 25th the openings in the leg were closed. A moderate amount of ulceration at the site of the original abscess of the leg necessitated treatment for several weeks longer. A moulded plaster-of-Paris splint, extending from below the ankle and encircling the foot, protected the leg from deformity and prevented possible fracture of the fibula. On October 25th an x-ray of this leg showed a very definite outline of a new tibia extending from epiphysis to epiphysis. The new tibia could also be felt very distinctly under the examining fingers.

This case went on having abscesses in various parts of the body for several years, but evidently built up enough resistance to overcome the original and later infections. I have seen him within the last few days and he is the picture of health, except for about a half inch shortening in the affected leg. His last abscess was in August, 1911. It came on rather rapidly and was opened and healed within a few days. This boy has had the best possible opportunities for carrying out every means for the relief of his condition. From the time of his first illness he was able to obtain every possible remedy necessary for the accomplishment of his cure. He had every help that money and attention could obtain for him. He is now about four years old, and practically from his first infection has never passed a night under a roof in a bedroom. His waking and sleeping hours have all been passed out of doors. This case illustrates the conservation of life, limb and health.

Case 6. J. E., male, Hebrew, eighteen years old, was in Bellevue Hospital in October, 1898, when I came on duty. He had been under treatment for some time by the surgeon preceding me in attendance. He had an osteomyelitis of the tibia and femur of the left leg. Two operations had been performed on him, the shaft of the bone in each instance being cut down upon, the diseased portion chiseled out, every part of the infected cavity curetted away, and the wound drained. Shortly after my taking care of him

new foci appeared in the upper end of the tibia and the lower end of the right femur. These points were cut down upon and treated in the same manner as in the former operations. This treatment and the convalescence following it lasted several weeks. In the meantime the same sort of infection occurred in the humerus of both arms. The operation was repeated in these regions. The long bones of the left leg were so seriously involved that it was thought hardly worth while to try and save the limb. He slowly improved, however, and when it was possible to do so we put him out of doors and kept him there all day and all night for a month, and then as his improvement continued in spite of suppurating bone sinuses in various parts of the body, he was sent to the country. The general treatment which was carried out consisted of special feeding, nursing and the best hygienic methods available under the somewhat limited circumstances of a patient occupying a bed in the general ward of Bellevue Hospital. At that time we knew very little about opsonic index, anti-bodies, vaccines, "resistance" of the tissues to infection, or the growth of germs. His mother, a little old Jewess, who was one of the most devoted women I have ever known, used to bring him daily fresh eggs, and milk and vegetables from the country, and such other dainty and nourishing and attractive food as she could get. Curiously enough she allowed us to put him by an open window, and assisted in every effort to build up his resistance. She gave up the little store in Avenue D. in which she earned a poor living, and, acting as a nurse, took him to a nearby village in New Jersey. Several times during the course of the six months in which he was in the hospital the local conditions and the evidence of general infection were such as pointed to amputation as the surest, safest, and certainly the quickest way to relieve him of the drain upon his system and allow him to leave the hospital alive. He returned to me after several months in the country with the sinuses all healed and his general health in very good condition. In this case fortunately, as in the one just related, the appetite remained good throughout the entire illness.

This man is now married and the father of a family. He is a ticket chopper on a station of the elevated railroad. Here is a patient who recovered from conditions threatening not only the loss of his limb, but his life as well. He had been in this country only a few years, was very

poor, and unable to afford even the necessities of life. Undoubtedly an amputation was indicated early in the disease. Such an operation would have saved considerable money for the city, for his mother and his friends, and a good deal of suffering for himself. In all probability, however, it would have made a helpless dependent pauper of a man who is now earning a living for himself and his family, is a tax-payer and a producer, and a self-respecting citizen and voter. This result was obtained in spite of the fact that he was deprived of all the advantages which wealth and influence are supposed to afford to ill or injured humanity. The case is reported as a contrast to the one immediately preceding in order to show what may be accomplished even for the very poor in an up-to-date hospital by means of careful attention and nursing, nourishing food, cheerful companionship, sympathy, encouragement, a knowledge of the origin of the disease, sunshine and fresh air, good digestion and in a youthful patient.

Case 7. P. A., aged thirty-two, longshoreman, was brought into the hospital by ambulance, November 10th, 1910. The patient was caught, while at work in the hold of a vessel, by a rope circling round his right arm above the elbow-joint. The rope was suddenly brought taut, breaking the bone at the junction of the middle and lower thirds. The fracture was compound, the upper fragment of bone protruding through the torn sleeves of his shirt and coat. On examination it was seen that the soft parts were torn completely off the bone at the seat of injury, except in front, the lacerated wound extending around the arm and involving all but the inner fifth of its circumference. In this uninjured portion of the soft parts the artery was felt intact, and the biceps muscle was also unimpaired. Circulation in the forearm was good. Although the endeavor looked almost hopeless, it was decided to try and save the injured member. The lacerated muscles were sutured together after a thorough cleansing of the wound, a drain was inserted through and through, and the fragments of bone brought in apposition and held with two moulded plaster-of-Paris splints, the elbow being flexed. Convalescence was absolutely uneventful, union of both bony and soft parts taking place without any untoward incident. At the end of six weeks the man was discharged from the hospital with normal function at his elbow-joint and a useful arm. He is now working at his avocation loading and unloading

ships along the water front—a striking illustration of the ability of apparently hopelessly damaged tissues to recover under certain conditions.

Case 8. Lily P., ten years old, was injured by being run into by a carriage, September 21st, 1911. She was brought into the hospital next day with a compound fracture of the upper third of the right humerus and the soft parts badly lacerated, a piece of broken bone projecting out through the torn clothing. Under an anesthetic the wound was cleaned and several loose pieces of the humerus were removed. The patient did very well until the end of the second day, when a sudden rise of temperature and pulse with foul smelling discharge and crackling in the wound showed that a severe infection of the part was taking place. Microscopical examination of the pus showed the presence of the air bacillus, and the patient was transferred to an isolation ward. A long incision down to the bone was made. In a few hours the rapidly spreading infection necessitated further cutting. Incisions were made in the axilla, the chest wall, the lower end of the humerus, and the upper end of the forearm. Amputation at the shoulder-joint was strongly urged, but refused. She was ill for several weeks. More fragments of the humerus were removed and came away with the discharge until it looked as if there was no part of the bone left except the upper and lower extremities. She was under treatment in the isolation ward until she came into my service early in January, 1912. By this time the wounds had contracted down to three or four very small but profusely discharging sinuses. The fore-arm was still badly edematous, the elbow-joint still fixed and painful, and there seemed to be very little left of the left arm except the soft parts. The biceps muscle itself had very nearly disappeared. X-ray examination at this time showed some slight remainder of bony structure at the upper and lower extremities of the bone, with a thin line of calcareous material uniting the two. It was a question whether she would have a more useful existence with an amputated stump at the shoulder, or such a defective limb as promised to result from leaving it on. Amputation was again advised and refused. Two weeks later a second x-ray showed a slight increase of bony material in the arm, and it was evident that a certain amount of periosteum was present uniting these bony points; and as her general health was very good, with her youth in her favor, it was hoped to obtain

a fairly useful arm, more especially as amputation was again refused. Under ether the elbow was flexed easily to a right angle, there being no bony ankylosis. Moulded splints were applied to protect the arm from injury and for its support. X-ray examination a few days ago showed a very decided amount of the new bone filling in the length of the upper arm. She has now well marked motion at the elbow-joint and in the fingers. A new humerus solid and firm, but curved and irregular in contour, can be distinctly felt. The swelling has almost entirely disappeared from the forearm and hand. The fact that she can flex her forearm upon her arm proves that enough of the flexor muscles are present to hope for more or less complete functional restoration of the joint action in the future.

This case is a remarkably good example of what may be done by conservation ideas in a surgical mind when helped by youth, good health, and a powerful tissue resistance.

Case 9. A. P1—, aged forty-two, ironworker, was injured by having both ankles extensively crushed between two iron beams. He was brought to the hospital, October 16th, 1910, the day of his injury, with a compound comminuted fracture and dislocation of both ankles. Both malleoli and the astragalus and os-calcis of both legs were broken. The patient presented severe shock, and as I happened to be operating at the time he was brought at once to the operating room, where an extensive cleansing of the lacerated wounds was carried out without anesthesia. The bloodvessels and most of the tendons crossing the ankle were intact, and the skin and subcutaneous tissue of the front and back of the ankle was uninjured. Through and through tube drainage was instituted and anterior and posterior moulded plaster splints applied for support. Convalescence was exceedingly tedious and troublesome both for the patient, the surgeon, the nurses, and the hospital. During this time the patient was taken to the operating room for treatment frequently, pieces of dead bone removed, abscesses about the foot and joint opened and drained, sinuses curetted, and various kinds of splints used to retain, as near as possible, the normal relation between the foot and the leg. After about sixteen months he was discharged cured.

He now presents the following condition: He has a moderate amount of motion in both ankle-joints. The legs are of about the same length. He is over six feet tall and his length has been

reduced perhaps a couple of inches. As the damage involved both legs it is impossible to say how much actual shortening is present. The point is that he is able to work, retains both feet, has satisfactory motion at the ankle-joint, and in spite of the suffering which he went through is living and satisfied with his good health. There is no doubt that the symptoms and injuries from which he suffered at the time he was brought to the hospital indicated the necessity of a double amputation. Had this been done and he survived he would have probably left the hospital cured, without having had to undergo the great amount of suffering, or the various operations, some of them under anesthesia, to which he had to submit, and that he would have thus saved himself, the hospital and everybody connected with his case a great deal of anxiety, worry, distress and care. But he would have gone away a cripple, deprived of the opportunity of earning his living, helpless, a burden to his family and friends, and perhaps consigned to even a worse fate. That is the contrast to which I wish to draw your attention.

Here are a few selections from the numerous experiences which can be duplicated many times over in the services of any of the surgical hospitals of this city, as well as in the private practice of most of the active surgeons.

Conservation of the human body, its organs and its functions may at times be best attained by radical surgery, at other times by conservative surgery. Cases may occur when conservation is best served by both radical and conservative procedures. Pursuing our surgical investigations and discoveries more in the direction of relief and cure without the use of the knife, is the aim of conservation surgery. Any well trained surgeon can amputate, or excise, or perform a permanent drainage successfully so far as the local result is concerned, but more is required than skillful fingers, good technic, and anatomical knowledge to save intact or restore to normal damaged organs or disordered functions. The expert surgeon of to-day operates with such ease, certainty, celerity and impunity that the temptation to over cut is almost irresistible. The example of modern surgical procedures is exceedingly alluring. Not all workers in the surgical field are experts. The startling after-effects found occasionally in the experience of all of us show that the temptation to emulate the brilliant surgeon may lead at times to very troublesome and even disastrous results. Waste

of human life or organs by surgical mutilation is a crime against the state as well as against the individual. The resources of the surgery of to-day and its ability to erase structures and avert physiological processes without death to the patient is marvelous, and we are only beginning to realize its possibilities. In spite of this, or because of it, we must not be blind to the necessity of saving and not wasting the human organism. Earnest consideration and thought ought to be given to the development of tissues and physiological processes, rather than to perfecting new and striking operations. Decay in injured living tissue is so easy and rapid; repair so difficult and slow. The need of succor for the damaged structures is ever present and always acute. There should be more building up and less tearing down. More efforts towards preservation and restoration and less towards problematical alteration. Protection and creation rather than attack and demolition. Constructive and not destructive should be our utilization of the wonderful advances made in surgery and its allied sciences.

Upon our ability to make proper use of this knowledge depends the conservation of human health, life and the race itself.

46 West 55th Street.

## FRACTURES AND THEIR TREATMENT.

By A. W. COLCORD, M.D., Clairton, Pa.

In no branch of surgery are there more all-around knowledge, good sense and skill required than in the treatment of fractures. In the writer's opinion, it takes a better surgeon to properly diagnose, reduce and care for the average fracture than to operate upon the average case of appendicitis. And when it comes to the more difficult cases, difficult of reduction or of retention, cases with delayed union or non-union, cases complicated by muscle, joint, nerve or bloodvessel injury, it often taxes the ingenuity of the surgeon to its utmost.

In no branch of surgery are failures so frequent nor so apparent to the layman. A badly "set" bone is a walking advertisement of the failure of the "setter" during the patient's lifetime.

Nowhere are malpractice suits so frequent nor so successful as in the fracture cases. It is so easy for the shyster lawyer to exhibit the crooked, stiffened, atrophied or paralyzed arm to the jury and wax eloquent over the ignorance or neglect of the surgeon and the wrongs of his client.

This paper is mainly a plea for the rational treatment of fractures, based on a study of pathology, mechanical causes of displacement, pain, spasm and the dystrophy of soft parts, causing loss of function. The writer has no pet method of treating fractures and insists that a "cut and dried" mode of treating any particular fracture must necessarily be bad in the great majority of cases.

The same intelligence and discrimination should be used in the management of fractures as in the treatment of typhoid fever. In treating this disease one must not only have a general knowledge of its cause, pathology, symptoms and course, but must make a study of each individual patient; every case constitutes a problem in itself and he must treat conditions as he finds them. The same is true of a man with a broken leg. The surgeon must not only be familiar with the causes, symptoms, pathology and course of fractures in general, and with the danger of loss of function and deformity to the patient; but he must know what causes produce the displacement of bony fragments, what obstacles he is likely to meet in reduction and retention, what causes the pain and muscular spasm, edema, and the later stiffness, atrophy, weakness and tenderness of the limb. He must be familiar with the different therapeutic measures which will cure or prevent these wrong conditions. And most important of all he must make a study of each individual case and accurately apply the principles to meet the conditions which he finds. No two legs are broken just alike — no two furnish the same symptoms, complications or difficulties. It would be just as absurd to lay down hard and fast rules for the treatment of every Pott's fracture as for the treatment of every case of typhoid fever.

During the nineteen years of his practice, the writer has had a large amount of railroad and mill surgery, work involving a large number of fractures — for the past ten years about one hundred fractures yearly. He has endeavored to give a few hints, taken mainly from his own experience, which he hopes may be helpful in this very important and difficult subject.

He has consulted freely the writings of others, including those of Scudder, Stimson, Mumford, Lexer-Bevan, Da Costa, Foote, Monnell, Rose and Corliss, Lane, Murphy, Eisendrath, and the various writers in the medical journals. He is also indebted to a number of Pittsburg surgeons, who have rendered him personal aid in furnishing cases for study, x-ray plates, etc.

#### DIAGNOSIS.

In making a diagnosis in a case of suspected fracture we should proceed with the same system and thoroughness as in diagnosing diseases of the chest, and we may use much the same process of examination. Some fractures are apparent at a glance while others require our utmost skill and patience to determine whether a fracture exists and what is its nature. For convenience in teaching assistants, the writer has been accustomed to use the following outline:

1. History,
2. Inspection,
3. Palpation,
4. Manipulation,
5. Measurement,
6. Auscultation,
7. X-Ray.

1. *History.*—We should try to ascertain the kind of violence, its nature, direction, amount of force, the position of the patient when receiving it, as well as the position of the injured limb.

We may question him as to his sensations at the time — Was there a sense of something breaking; did he hear it, etc? Was it immediately followed by loss of function? Could he walk on foot, use his arm, etc? Was there pain and what was its character, location, direction, and duration?

Later, after we have completed our diagnosis and given him proper treatment, we may get some other facts in the patient's family history, personal history and present condition that may have a bearing on our prognosis and treatment. Always obtain a history of previous injury to the affected limb. Failure to do this has led to many errors in diagnosis.

2. *Inspection.*—We now should carefully remove as much of the patient's clothing as will expose both sides of the body well beyond the injured limb and the corresponding one of the other side, and place him in a position where both limbs are symmetrically placed. Use good light. Now observe the contour of injured limb as compared with the well side. Note any swelling, change in shape of joints, discoloration, abrasion, wound, or protruding bone, either through the skin or under the skin. Look for any unnatural bending of the limb between the joints. Note carefully the position of the limb — everted, inverted, arm carried in the other hand, etc., and whether the patient uses the injured limb. This is especially useful in case of babies. Note the patient's attitude — some attitudes are peculiar to certain fractures, as that of fractured clavicle or rib. Note his facial expression — anx-

iety, pain, shock, etc. Look for associated symptoms from injury to soft parts or important organs. In certain fractures you may expect certain symptoms, as:

- (a) In fractured skull—concussion, changed pupils, coma, convulsions, hemorrhage from ear, nose or mouth, etc.
- (b) In fractured rib—hemoptysis, dyspnea, or pain, indicating injury to nearby nerves or to pleura and lung.
- (c) In fractured pelvis—hemorrhage from urethra, extravasation of urine, hemorrhage into pelvis, etc.
- (d) In fractured spine—paralysis of parts below, retention of urine, etc.

Note the patient's general condition as regards shock, hemorrhage, or injury to vital organs.

3. *Palpation*.—This should always be very gentle. Note the contour of the soft parts, then of the bone, also the relative position of bony prominences, as the three prominences of the elbow-joint, the trochanter of the femur, malleoli, etc., comparing them with those of the sound side. Note any swelling or hematoma. If the latter, does it pulsate? Unnatural movements of fragments can usually be discovered by little more than a slight touch. Now press gently over the point of suspected fracture and see whether sharp pain is elicited. This will often diagnose a fracture without displacement, or a fissure or subperiosteal one. It is often the only sign in fracture of the lower end of the radius or malleoli.

4. *Manipulation*.—Most fractures have by this time been diagnosed, and this maneuver should rarely be necessary, as by it you cause pain and inflict greater injury on the soft parts. However, if you failed to make a diagnosis by inspection and palpation, steady the limb over the point of supposed fracture with one hand and with the other gently rotate the distal portion, or give a slight lateral motion, to elicit crepitus. Having gotten it once, do not repeat it a few times for your own satisfaction and then for that of the patient or his friends. Learn to distinguish between the harsh crepitus of bony fracture and the soft crepitus of separation of the epiphysis. Do not be deceived by joint-crepitus or by a tenosynovitis in a nearby tendon. Do not exclude fracture on account of the absence of crepitus, as many causes may prevent it. You may, by manipulation, also note unnatural motion of a bone, by holding the upper fragment and moving the lower one laterally or rotating it.

5. *Measurement*.—This is an important thing in fracture diagnosis, not only in ascertaining its pres-

ence, but also to estimate the shortening or other deformity. We must resort to it especially in:

- (a) Fractures of the shaft of the femur—measure from the anterior superior spine to the inner malleolus. Compare with the sound side.
- (b) Fracture of the neck of the femur—measure from anterior superior spine to greater trochanter. Compare with the sound side.
- (c) Fractures about the ankle.
- (d) Fractures of the humerus.
- (e) Fractures of the clavicle—measure from the mid-point of the sternum to the tip of the clavicle.

In measuring we must be careful to have the two sides in exactly the same position. See that a line joining the anterior superior spines is at right angles to the axis of the body in fractures of the lower extremity.

6. *Auscultation (by stethoscope)*.—This may be of use in detecting crepitus, especially in fractured rib. Some one has devised a plan of placing a tuning fork on one end of a bone and listening with a stethoscope at the other end. A sound bone will transmit sound—a fractured one will not. I have not tried it.

7. *X-Ray*.—One often finds it necessary to use the x-ray in:

- (a) Diagnosis of fractures:
  - 1. To decide whether there is a fracture.
  - 2. To locate which part of bone it is in.

This is especially true of joint fractures.

  - 3. To find the kind and extent of bone injury, direction of fracture, etc.
  - 4. To detect the kind and degree of displacement.
- (b) During treatment:
  - 1. To see whether the fracture is properly reduced.
  - 2. To see whether it is being properly retained.
  - 3. To observe the progress of callus formation.
- (c) After treatment, when patient is discharged:
  - 1. To find the resulting bony deformity.
  - 2. To preserve a record of the work.
  - 3. For protection from criticism or malpractice suits, etc.

Any one treating a considerable number of fractures should either have his own x-ray machine, or send the patient to some one who makes a specialty of this work. It takes more skill to properly interpret x-ray pictures than to take them, and in

the hands of any one not seeing a large number they are often misleading. Yet on the whole we have derived much good from the use of the x-ray and it has contributed greatly to more accurate work. It is of value by showing us our failures. It is usually best to take two pictures of a limb—one antero-posterior and one lateral. Label each plate with the name of the patient, date, part taken, aspect, and state whether before or after reduction; or number the plates and describe in the case records, referring to the numbers. As a rule, show the patient only the picture taken before reduction. Perfect anatomical reduction is a rare exception, and the slight deformity shown in the picture after reduction will be misunderstood by the patient and his friends and cause them to be worried and dissatisfied.

Some hints in the diagnosis of fractures:

1. When called to treat a fracture, exclude bystanders, place the patient in a comfortable position with quiet surroundings, and reassure him.

2. If there has been a severe crushing injury, a severe compound fracture, or a fracture complicated with injury to important organs, before attempting to make an accurate diagnosis of the fracture itself or treating it, observe the three cardinal points in such injuries (note the order):

- (a) Stop hemorrhage.
- (b) Combat shock,
- (c) Relieve pain.

3. If pain is severe give morphia  $\frac{1}{4}$  gr. and atropin 1-160 gr., hypodermically. This will:

- (a) Relieve pain,
- (b) Arrest muscular spasm,
- (c) Make reduction easier and less painful,
- (d) Calm patient's fears and anxiety,
- (e) Combat shock,
- (f) Prepare patient for anesthetic, if one is needed. He will require less chloroform or ether.

4. Be gentle in handling the patient. You will thereby:

- (a) Win confidence of patient and his friends.
- (b) Avoid inflicting unnecessary pain.
- (c) Not injure the soft parts.

I know of no place where the brutal, careless, ignorant or untrained surgeon will so quickly and surely show what he is as when he approaches a case of fracture to make a diagnosis. To see him begin by seizing the limb and roughly manipulating it stamps him, at once, as one of these.

5. Carry a tape-measure always in your pocket and use it frequently.

6. Keep a careful history of each case, including family and personal, present condition of the heart, lungs, kidneys, etc., description of the fracture with its history, method of reduction, mode of treatment, number of each x-ray plate and result, including function and deformity.

7. Give an anesthetic:

- (a) When reduction promises to be very difficult or painful.
- (b) When you cannot make an accurate diagnosis without it.
- (c) Usually in fracture complicated by dislocation or severe joint-injury and in fracture of the femur. Also in severe compound fracture.

8. Always strip the patient. Fractures are usually diagnosed better in a hospital, because stripping of the patient is done as a routine measure. The trained surgeon learns to use his eyes and diagnose most fractures at a glance.

9. Always examine the patient himself and ascertain the existence of any constitutional disease, as Bright's disease, diabetes, tuberculosis, anemia, syphilis, alcoholism, etc.

#### DIFFERENTIAL DIAGNOSIS.

Some of the conditions from which we must differentiate fractures are the following:

1. *Dislocations*.—This is especially true in fractures of the upper end of the humerus, either of the anatomical or surgical neck with marked displacement of the lower fragment. Here the sharp edge of the lower fragment may be felt under the skin and the upper one in the axilla.

Dislocation of the elbow in adults is often accompanied by a fracture. Here the x-ray is usually necessary to clear up the diagnosis.

Dislocation of the wrist may simulate Colles' fracture. Feel for the styloid processes of both radius and ulna and compare with those of the sound side. Feel for the point of sharp tenderness on the outside of the radius just above the lower end.

Dislocation of the hip should not be difficult to differentiate from fracture.

2. *Sprains*.—The most difficult sprain in my own experience to differentiate from fracture has been that of the ankle. In this sprain, if severe, something gives way and it is always the weakest thing. The ligaments only may be torn, constituting a simple sprain, or a ligament may come away at its insertion, carrying with it portions of its bony attachment. Often there is fracture of one or both



malleoli. Look for points of tenderness over the malleoli, keeping away from the margin, and follow well up to the fibula. Many fractures of the malleoli give no crepitus.

Sprains of the elbow may simulate fracture even to joint crepitus, which is frequent in babies. When you find crepitus in a baby's elbow, see if it is not also in the other one.

Sprained wrist with much swelling along the tendon sheaths may simulate Colles' fracture, but the classical points in the diagnosis of the latter should clear up most cases.

3. *Contusions*.—A contusion severe enough to injure the periosteum may closely resemble subperiosteal fracture. Absence of a point of tenderness on the opposite side of the bone will usually exclude fracture, as where a heavy body has fallen on the dorsum of the foot, we may try pressure on the sole of the foot over the point of a suspected metatarsal fracture.

In contusions of chest where fractured rib is suspected, apply pressure with each hand over the ends of ribs, keeping well away from the contused area. If there is fracture we get sharp pain at the point of the break. Or we may use a stethoscope over the rib and often elicit crepitus with movements of breathing.

A contusion of the scalp may feel to the touch like a depressed fracture from the hard rim of swollen tissues around it.

A contusion of a joint of the finger or thumb, transmitted from a blow on the end of the finger, is often difficult to tell from a fracture of the joint surfaces. From the frequency of this injury to those playing the "national game" the writer has called it "base-ball" fracture. X-ray examinations will show quite a large proportion of these cases to be real fractures, as the annexed skiagram will illustrate. In my opinion, all that present large joints afterward have been real fractures.

When in doubt in regard to the diagnosis of any fracture, give the patient the benefit of the doubt and take an x-ray picture, treating the case as a fracture until the diagnosis has been made.

#### PROGNOSIS.

When we have made our diagnosis of a fracture we must be able to answer the questions of the patient and his friends as to the probable ultimate results of his injury.

##### 1. Will he live?

Of course we must be guarded in this, especially in fractures of the skull, or those involving important viscera. Also in fractures in old people, especially intracapsular frac-

ture of the femur, as well as in severe compound fractures with danger of sepsis, loss of limb or life.

##### 2. Will there be union?

We must take into consideration the presence of constitutional disease—the difficulty in reducing, retaining, etc.

##### 3. Will function be restored? That is, will the patient have a useful limb? Will the joint

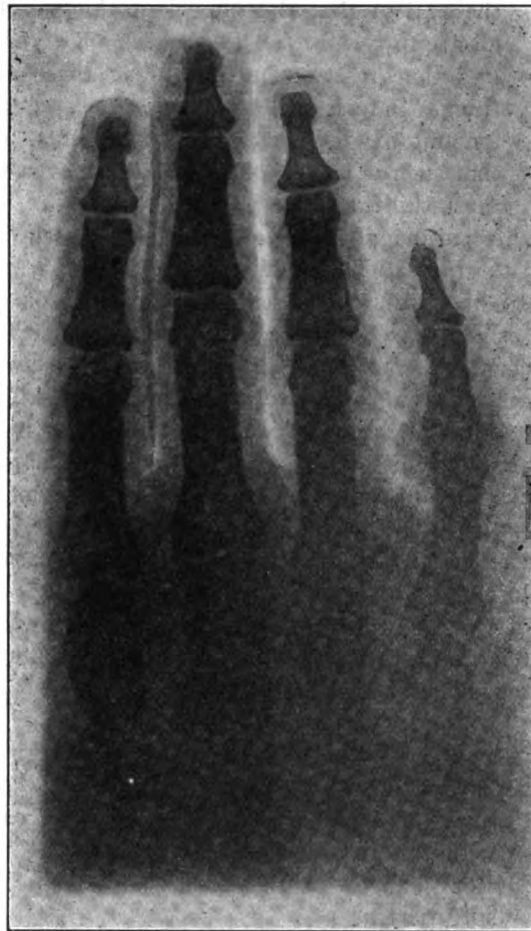


Fig. 1. "Base-ball" Fracture

be stiff? Will there be paralysis or atrophy?

Here again we must be guarded. A Colles' fracture may give a stiff wrist; an elbow fracture may result in limited motion; a femur may be shortened; a Pott's fracture may leave a stiffened, painful, tender ankle.

##### 4. Will there be deformity?

We must explain to the patient that we cannot produce perfect results. There must be bony callus, often a slight change of direction, sometimes a little shortening. Especially should we do this in fracture of the clavicle, where the callus and deformity are so easily felt under the skin. In separation

of an epiphysis we should explain the danger of interference with the growth of bone.

5. Will anatomic results be perfect?

One of the objections frequently urged against the use of the x-ray is that it makes the patients dissatisfied when they see the amount of displacement after the most careful reduction in the average fracture. This objection is partly met by not showing the plate after reduction, and by explaining to the patient that the important things after all are to *restore function* and *avoid deformity*; that if we can accomplish these two things, nature will take care of a certain amount of displacement of fragments, and that such is usually unavoidable by even the most skillful surgeons.

If after a diagnosis and careful prognosis in answer to the patient's inquiries, he desires a consultant or wishes to be sent to a hospital, or expresses a preference for another surgeon in whom he has more confidence, grant his requests cheerfully, even though you feel that you are as skillful as the surgeon chosen. You cannot afford to make too many promises of a perfect result, and will gain nothing by any but a frank, candid statement of the patient's chances. Such frankness, especially if based on good judgment, while it may occasionally lose you a case, will win more in the "long run" — not only in an increased number of patients, but, what is more, in the confidence of the community in your honesty and surgical skill.

PATHOLOGY.

We may conveniently divide the pathology of fractures into three stages:

1. Injury of bone, periosteum, and soft parts with the resultant early changes.
2. Later changes in the bone, periosteum and soft parts.
3. Permanent changes.

1. *Early Changes.* — The periosteum in most fractures is torn. According to Eisendrath it is seldom torn clear around — it is often stripped from one fragment for a space of  $\frac{1}{4}$  to 1 inch. This often occurs in fractures of the lower end of the radius or humerus where it is stripped from the dorsal surface. It then remains attached to both bones. There is always some injury to soft parts, depending on the kind and degree of violence and whether direct or indirect. This causes:

- (a) Contusion or laceration of skin, fascia, muscle, blood and lymph vessels, nerves and ligaments.
- (b) Extravasation of blood into the tissues sur-

rounding the fragments, often burrowing along lines of least resistance, where it shows later as ecchymosis in the skin of distant parts.

- (c) Filling of lymph spaces with serum — edema.
- (d) Stasis of circulation in the limb, caused partly by pressure on the bloodvessels by swelling, partly by nervous reflexes.
- (e) Increase in local leucocytosis — getting ready for repair.
- (f) Blebs may form on the skin at the termination of an injured nerve.

The portion of exudate around broken ends of bone will later be utilized in the formation of callus, but only so much as is near areas of periosteum from which must come the osteoblasts for ossification of the callus. All other portions of exudate are not only useless but harmful, and assist in those deforming and disabling changes to be mentioned later.

2. *Later Changes:*

(a) The portion of exudate around the ends of bone becomes organized into granulation tissue, which begins to ossify in about twelve to fifteen days (Eisendrath). This process is complete in uncomplicated cases in three to eight weeks according to what bone is broken, the age and physical condition of the patient, the blood supply of the part, etc. The callus filling the medullary canal ossifies from endosteum. It must be noted that periosteum, though far removed from bone, will cause ossification of exudate, and this is often a cause of added deformity. This large ossifying exudate around the bone, between the ends and filling the medullary canal, is called the "provisional callus." Any irritation of the exudate forming the callus, as too much motion of bone or too vigorous massage, will produce an increase in its size.

(b) Repair of lacerated parts by formation of scar tissue in muscle, fascia, tendon, ligament, etc.

(c) If causes persist (obstructed circulation), edema changes to hyperplasia (hard edema).

(d) Organization of portions of extravasated blood into scar tissue.

(e) Nutritional changes in various soft parts, muscle, nerve, bloodvessels, tendon, ligament and joint. These consist of degeneration of muscle fibers which are replaced by connective tissue. Nerves have epineurium thickened and axis cylinders shrunk. Bloodvessels have coats thickened. There are structural changes in joints with thickening and hardening of ligaments. Tendon sheaths become roughened, and there are adhesions of tendons to their sheaths. In extreme cases there is a general "matting" of all these tissues, all bound

down in one mass of scar-like connective tissue. By a series of experiments on dogs in 1891 M. Castex proved these changes to be due to nerve reflexes.

(f) It is a well recognized law that atrophy of a muscle is always attended by atrophy of the bones to which it is attached and of the joints which it moves. This has an important bearing on the repair of fractures and the loss of function resulting from improper treatment.

### 3. *Permanent Changes:*

(a) The provisional callus is left in place by nature only until the broken ends are bound firmly by good bone. Then the part surrounding the bone and that filling the medullary canal are absorbed. It is obvious that the size of the permanent callus will depend largely on how accurately the fracture has been reduced. Nature always leaves enough callus to support the strain to which the bone is subjected.

(b) It has been found that long immobilization and tight splints will tend to increase the matting and dystrophy above described. Much of the hyperplasia, even several months after fracture, may be reduced by appropriate treatment. The same is true of the stiffness and atrophy of other soft parts. But some of these changes will be found to be permanent and will result in a certain degree of loss of function.

(c) Joint ankylosis may be complete or incomplete. Complete ankylosis is only caused by loss of synovial membrane and is rare unless from sepsis of joint or constitutional disease. Incomplete ankylosis may result from:

1. Unreduced fragments of bone united in wrong position in a joint.
2. Bony callus limiting joint motion.
3. Fibrous material deposited about a joint. This will improve under treatment, but will not disappear completely.
4. Stiffness of muscles and tendons. This will usually subside completely if there is not too much matting of soft parts.

### TREATMENT.

The objects of treatment in fractures may be briefly stated as follows:

1. To save life,
2. To restore function,
3. To avoid deformity,
4. To relieve pain and spasm,
5. To promote the comfort of the patient,
6. To prevent and relieve complications.

1. *Life Saving Measures.*—In severe crushing injuries and those involving large bloodvessels or

important organs attention has already been called to the importance of attending to the general condition before trying to make an accurate diagnosis or treating the local injury. The main points to be observed are:

- (a) Stop hemorrhage,
- (b) Combat shock,
- (c) Relieve pain,
- (d) Treat other important complications as they arise,
- (e) In the aged or feeble avoid prolonged recumbent position. Mortality here is high from pneumonia, pulmonary edema, etc.
- (f) Avoid manipulation as far as possible. Fat embolus is an occasional cause of death. This is said to be even more frequent in simple fractures.
- (g) Avoid sepsis by treatment of compound fractures with strictest antiseptic precautions.
- (h) If the wound has been contaminated with garden, barn-yard or street dirt, use a prophylactic dose of antitetanic serum.
- (i) In alcoholics use nerve sedatives and appropriate doses of alcohol to prevent delirium-tremens.
- (j) In cases of profound sepsis or spreading gangrene amputate soon enough and high enough to save life.
- (k) In the writer's opinion, in severe crushing injuries of limbs where amputation is necessary, we should amputate as soon as possible after accident and before shock has come on. Most deaths in those cases which I have seen could have been prevented by prompt amputation.

2. *Restoration of Function.*—Function may be said to be restored when:

- (a) Gross deformity is avoided. Moderate deformity is not incompatible with function. Of the two evils, this is better than perfect anatomical results with poor function.
- (b) Muscles are strong and move easily and painlessly.
- (c) Tendon sheaths are smooth and free and allow easy and painless movement of tendons.
- (d) Nearby joints have nutrition restored to all soft structures, ligaments, synovial membranes, fascia and cartilage, and there is absence of ankylosis, bony or periarticular. The joint must be strong and have full range of easy painless motion.

- (e) There is absence of "matting" of the soft parts above described.
- (f) There is unobstructed circulation in veins, arteries and lymphatics. Overgrowth of scar tissue following fracture will produce hard edema from obstructed lymphatics, a cold limb with dystrophy from obstructed arteries, and a tendency to swell from obstructed veins.
- (g) When there is absence of pressure on nerves. This, if present, will cause pain, numbness, tenderness on motion, and, if extreme, a paralysis of all parts supplied by the nerve. Permanent nerve changes may come from:
  - (1) Injury of nerve at the time of fracture, as of musculo-spiral.
  - (2) Pressure on nerve by bony callus.
  - (3) Pressure by scar-tissue, as in "matting."
  - (4) Trophic changes in nerves analogous to those of muscle, caused by reflexes. (See experiments of M. Castex above referred to.)

3. *Avoiding Deformity*.—Deformity may be that of bones, joints or soft parts. That of joints and soft parts has been already described; that of bone may consist in:

- (a) Shortening,
  - (b) Angulation,
  - (c) Small fragments out of position.
  - (d) Protruding ends of bone under the skin, causing unsightly and tender bony prominences,
  - (e) Superabundant callus,
  - (f) Non-union, causing flail joint,
  - (g) Fibrous union.
4. *Relief of Pain*.—Pain in fractures is caused by:
- (a) Direct injury to soft parts (in fractures from direct violence).
  - (b) Injury to soft parts by bony fragments.
  - (c) Injury to periosteum by tearing, stretching, stripping or pressure.
  - (d) Crushing or tearing of important nerves.
  - (e) Pressure on nerves by swelling.
  - (f) Traumatic tenosynovitis or arthritis with overdilatation.
  - (g) Spasm of muscle.

The obvious thing to do for the relief of pain is to remove the cause. We can do this by:

- (a) Using gentle massage (Glucokinesis of Lucas-Championnière). This will be described more in detail later.
- (b) Accurately reducing fracture, thereby get-

ting roughened ends of bone away from soft parts and taking strain and pressure from periosteum.

- (c) Applying well fitting splints, which by their own pressure hold fragments in correct position, stop muscle spasm, limit swelling, and prevent motion of nearby joints. Splints should be strong enough to allow no movement; should not be too tight so as to cause pain, injury or obstruct circulation; should not press on bony prominences, as the heel, condyles of the humerus, the prominence on the posterior surface of the lower end of the radius or malleoli. As a rule they should immobilize the joints above and below the fracture.
- (d) Giving a hypodermic of morphia,  $\frac{1}{4}$  gr., and atropin, 1-160 gr. The other benefits of this have been already mentioned.
- (e) Giving a general anesthetic if reduction promises to be too painful or difficult.
- (f) Putting the limb in the most comfortable position to relax muscles or joint ligaments.

Spasm of muscle is due to reflex action and results from the injury to bone, periosteum and soft parts. It causes pain and can in turn be caused by pain. As it is the principal factor making retention and reduction difficult, it should receive our careful consideration. One of the strongest claims made by Lucas-Championnière in his treatment of fractures by massage is that it will stop muscle spasm and thereby render reduction and retention easy. In the few cases in which the writer has tried it, he has found it of great use for this purpose. In addition to this, the chief means to stop spasm are:

1. A general anesthetic. This is almost always necessary in reduction of fractures of the shaft of the femur and is often needed in other fractures. It should be pushed until the muscles relax. The writer usually uses chloroform.
2. Morphin and atropin. Administer only before reduction — their continuous use is not advised.
3. Belladonna applied in form of ointment to the whole limb and covered with thin waxed paper. This is employed only after reduction and is often very useful.
4. Careful, gentle, accurate reduction. This and proper retention are the important things. We here remove the cause of the muscle spasm.
5. A well fitting splint with correct position of

the limb, retaining the fragments at rest.

6. Pulling of the limb (for reduction). This is rarely necessary, except a little gentle traction to disengage the roughened ends of bone. Much damage and unnecessary pain have been caused by the violent, awkward use of this measure.
7. Extension with weight and pulley, or similar device (for retention). This has been a favorite method in the past, especially in fractures of the femur. In my opinion, it will soon pass into history. There are better and less harmful, painful, and uncomfortable ways of overcoming muscle spasm. Probably much atrophy and matting of muscles and other structures are caused by it, with consequent loss of function.

(To be Continued.)

## THE DIAGNOSIS AND TREATMENT OF SPINAL DISEASE.

By A. DAVID WILLMOTH, A.M., M.D., Louisville.

The principal *raison d'être* of this dissertation is to endeavor to incite renewed interest in a subject which at present seems greatly neglected. It would appear that too much attention is being devoted to abdominal surgery, and little if any to surgical diseases of the bony structures. Rarely is an article written on bone surgery, and rarer still on spinal affections. Therefore, the object of this paper will have been attained if a desire for closer study of this important subject be inspired.

Within the past few months several patients suffering from spinal disease have come under the writer's observation, and in the majority the lesion had been entirely overlooked; at least a correct diagnosis had not been made until the affection was far advanced, i. e., had reached the point where the ancient axiom "he who runs may read" might be aptly applied. Ordinarily cases of this character are treated symptomatically or receive no treatment whatsoever, e. g., one of those recently seen was being treated for wry-neck, the second for renal calculus (because there was pain over the kidney region in front), the third for sciatica, the fourth for rheumatism, and the fifth for appendicitis.

If an early diagnosis is to be made, two things are absolutely essential: (1) An intimate knowledge concerning the normal spine, its conformation, curvature, flexibility, etc. (2) A careful examination, which requires that the patient be stripped if a child, or if an adult that the back be entirely

exposed. The patient should first be observed as to normal movements, i. e., stooping, rising, sitting, etc.; next be placed on a table, or if none be at hand, on the floor (never on a soft bed), and the following symptoms looked for in the order named: (a) Weakness, (b) pain, (c) stiffness, (d) awkwardness, (e) deformity, and (f) paralysis. Since the disease affects the main support of the body, weakness is early manifested, and the more vulnerable the spine the earlier the symptoms may be detected; e. g., in the child, as the spine is largely cartilaginous, the quick tiring at play, the refusal to stand, and when doing so supporting the weight of the body upon something, the refusal to walk, etc., will be noted early in the history of the disease.

The impaired mobility of the spine resulting from early osteitis is in part voluntary and partially involuntary. It is voluntary in that the patient adapts himself to the circumstances and avoids jars, strains and positions which cause pain; involuntary because contracture and tension of the muscles about the site of the lesion fix (in part or in toto) the affected region. At first this may be noted only on extremes of motion, but it is always present and should be regarded as one of the first and most valuable diagnostic signs of spinal disease.

The change in outline and flexibility of the spine can be demonstrated by bending the patient forward. If the spine assumes a long, even, regular curve, with no evidence of pain or rigidity when such position is assumed, Pott's disease is improbable. On the other hand, if the outline of the curve is broken, i. e., if motion of one section of the spine is restricted by muscular contracture, and particularly if other symptoms are manifest, spinal disease may be diagnosed with certainty.

The most common symptom of disease of the lower two-thirds of the spine may be observed by placing the patient on the table with the face downward, then catching the legs and trying to lift the patient; in other words, hyper-extending the spine, which will cause the muscles to stand out like whipcords if the area mentioned be involved. In cervical disease, motion of the spine may be noted by watching the movements of the patient's head, fixation being suspicious of Pott's disease. Backward deformity of the spine in any region may also be regarded as suspicious of this condition. Another symptom is awkwardness which is largely brought about by the other two manifestations mentioned, pain being added thereto, which causes marked change in the appearance and attitude of the pa-

tient. And, it may be remarked *en passant* that such attitude may not only be diagnostic of spinal disease but of the region of the spine implicated.

One of the symptoms most easily observed is deformity, and when this becomes evident even the laity understand what is the matter. However, unfortunately for the patient, serious bone destruction may have occurred before deformity is present to any appreciable degree. Deformity should be studied under three headings, viz., (a) bony, (b) muscular, and (c) compensatory. The first represents the well-known "boss on the back" due to angular projection of the bony processes. The muscular variety is well illustrated in the so-called wry-neck, which is a symptom of upper cervical disease, and psoas contraction which indicates implication of the lower spinal region. The third is a direct result of the first, i. e., an angular projection must be balanced by a compensatory incurvation, or a lateral curvature by distortion in another direction. These are necessary to properly balance the body. The deformities are usually combined, the muscular oftentimes preceding the bony, and sometimes being observed before local deformity is noticeable.

In studying compensatory spinal deformities one must first reckon with the normal, and also remember that even normal conformation of the spine in the adult may change according to occupation, i. e., the round shoulders of the cobbler, the stoop of weakness and of old age being typical illustrations thereof; but in children and young adults any marked deviation from the normal is to be regarded as pathological. The normal spine curves forward in the upper, backward in the middle, and forward in the lower regions; likewise, motion is different in certain portions. In the cervical and lumbar regions extensive motion is permitted owing to the large amount of elastic intervertebral substance, also the direction of the articular surfaces, and because the center of motion is near the middle of the body. This is in striking contrast to the thoracic spine, where the spinous processes overlap each other, the spine being supposed to form a part of the rigid thorax, and the intervertebral discs are very thin. Where motion is freest, any limitation will be early noted; likewise, muscular spasm will be a prominent early symptom of disease. In the lumbar region stooping, sitting, etc., cause rigidity which is unmistakable, and in cervical disease the head is held rigid by the stiff neck, and in some instances is drawn to the side.

Pain is a valuable symptom when present and properly interpreted, the great difficulty being that

when found disease is anticipated in the same region, which of course is not true. This fact has caused a number of good surgeons to make mistakes. Pain and tenderness at the site of the lesion are absent for the following reasons: (a) The pathology is generally on the anterior side, hence not easy of palpation; and (b) pain is not felt because it is referred according to the nerve distribution. This fact caused a mistake to be made in one of the cases mentioned, where pain was felt in front over the kidney region. Similar conditions are noted in the familiar sciatic pain of lumbar involvement. Pain is therefore deceptive, but constitutes a valuable signboard pointing to the direction of the lesion, if one will only read it intelligently. It must be remembered that (a) pain in lumbar involvement is usually bilateral, whereas in sciatica it is unilateral; that (b) the nerve trunks are tender in sciatica and not in spinal involvement; that (c) in sciatica any movement of the legs which induces nerve tension will cause pain, whereas in lumbar disease such is not the case.

Another symptom is the waddling gait observed in spinal disease. This may be mistaken for several conditions, but the most common source of error is attributing it to congenital hip-joint dislocation; one has only to remember, however, that dislocation of the hip-joint will have existed from birth, whereas the waddling gait due to spinal disease develops slowly, and other symptoms will also most likely be observed.

While too much cannot be said regarding the necessity of careful attention in observing movements of the spine, the attitude of the patient in standing, walking, etc., it must not be forgotten that in infants this does not apply. In young children two factors constitute the most important guides, i. e., the intensity and the extensiveness of muscular spasm, and the spine need not necessarily be divided (figuratively speaking) for the sake of study.

The psoas muscular contraction frequently noted is unfortunately not an early sign of spinal disease, and when present is oftentimes erroneously considered as evidence of hip-joint involvement. The following suggestion will assist in eliminating this error in diagnosis: If the psoas and iliac muscles be still further flexed, it will be found that the hip remains free from pain, nor do other movements cause discomfort. This would not be the case in hip-joint disease; in fact the reverse would be true.

In order to facilitate the study of spinal disease one should begin with that portion most generally implicated, i. e., the lumbar region, plus the two

lower dorsal vertebræ. It is in this section of the spine that the most constant and extensive movements occur, and the characteristic rigidity of spinal disease will be early observed. The patient may assume the position called "over-erect," i. e., he may have a "hollow-back" (lordosis), and accompanying this there is always a prominent abdomen. In walking it will be noted such a patient steps carefully, keeping the feet slightly turned inward to avoid jar of the heels striking the ground. This is the characteristic waddling gait of lordosis, from loss of accommodating motions of the spine as the weight falls alternately on each leg. Lordosis under these circumstances is principally the result of tenderness from contact of the spinal processes in front, the spine being involuntarily bent backward, also in part due to contracture of the large muscles of the back, and to compensation made necessary by the psoas muscle contraction slightly tilting the pelvis forward. This lordosis may be afterward obliterated, the back assuming a posterior curve; but there remains a backward appearance of the body made necessary by the change in balance. In fact, this "over-correction" is, with one exception, characteristic from beginning to end of disease in this location, viz., where abscess has formed which causes the patient to keep the legs flexed and the erect position becomes impossible. As a result of psoas contraction and abscess, the patient may lean to one side, and unilateral contraction of the muscles of the back, likewise destruction of the side of the vertebral bodies, will be productive of similar result.

The characteristic stiffness, pain and weakness of disease in this locality are evidenced by the child being unable to turn in bed, awkward in arising, preferring to stand rather than sit, etc., but most of all in stooping is the spine protected from bending. This stiffness may also be early detected by placing the patient on the abdomen and lifting the feet, swaying the patient from side to side, since in early life the spine is so flexible that the least stiffness of the lower dorsal region may be observed if due care be exercised in the investigation.

In the diagnosis of disease involving the middle spine, it is necessary to remember that normal motions are limited in comparison with those above and below this section which includes the third and tenth dorsal vertebræ. However, the diagnosis is ordinarily easy, deformity being present in the majority of instances when the patient comes under the observation of the surgeon. The only feature which may make diagnosis difficult is the fact that the spine has a natural bow backward, hence the

condition may be mistaken for round shoulders. If one will observe the shoulders closely, however, they will be found shrugged and square, being elevated from shortening of the neck and lowering of the head. If disease be present in this region, the attention of the parents is early called to the pigeon-shaped breast of the child, which is oftentimes apparent before any spinal curvature is noted.

The writer would not be doing the subject justice if he failed to mention the "belly-ache" so commonly observed in these little patients, also the grunting respiration and the cough of irritation, or, as some authors have so well expressed it, the "aimless cough." There is also a change in the respiratory rhythm. It is in the lumbar and middle regions that spinal disease is most frequently observed, first manifested by the awkward, stumbling gait, and finally there occurs loss of the power of walking. In attempted differentiation the following facts must be borne in mind: (a) pain, (b) cough, (c) embarrassment of respiration, and (d) the affections with which abscess and paralysis might be confounded.

The upper spinal region it is believed constitutes a section which should be studied more closely than has been done heretofore. This section is divided into two parts, of which the occipito-axoid portion is peculiar in that it contains no vertebral bodies or cartilage, and movements are dependent upon special muscles and special joints. Disease involving this portion of the spine is particularly dangerous on account of possible damage to the cord, which may be sufficiently severe to cause death of the patient. Various neuralgic pains are common in the regions supplied by the upper spinal nerves; likewise, the attitude and appearance of the patient undergo marked change when normal movements are interfered with. Who has not seen one of these little patients resting the elbows on a table, supporting the head with the open hands? Any attempt at examination causes the child to scream with pain, provided the head be moved. There is often a slight bulging of the spine over the location of the disease. Change of voice is frequently noted, also a peculiar snoring respiration. If abscess is in the process of formation behind the pharynx, the child often refuses to go to bed because breathing becomes more difficult, and he oftentimes suffers from so-called croup when in the recumbent position.

The following facts must be remembered in attempting to arrive at a conclusion concerning the exact site of destruction of bone in the upper spinal area: If the nodding movement is interfered



with and more or less restricted, the disease is in the occipito-atloid joint; whereas, if rotation is restricted, it is in the atlo-axoid joint. In examining the head it should be held firmly, to avoid any mistakes in the location while the patient is moving the balance of the spine.

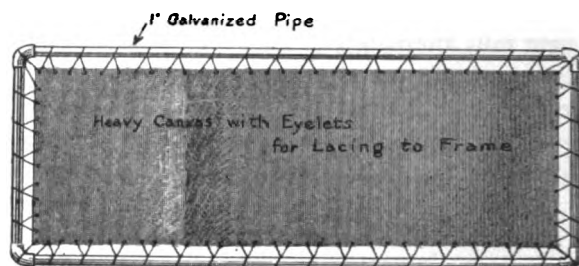
In disease of the lower portion of the cervical region the symptoms are less marked, the spine becoming a little straighter and the head of the patient being turned to one side. This is a very important sign, but has caused many mistakes in diagnosis. It is essential to note the position of the head, which constitutes the so-called "wry-neck symptom." However, if it be wry-neck, the chin will be turned to the opposite side and elevated, whereas in cervical disease the chin is turned to the affected side and pulled downward by the smaller muscles.

The treatment of spinal disease may be summarized under the headings of conservative and operative measures. Conservative treatment consists of rest and immobilization for at least two months after manifestation of the last pain; but the difficulty is how to accomplish this. There can be no question that the ideal method is to keep the patient supine in bed by means of such frames or appliances as may seem necessary to induce the desired results. While braces are advocated by some of the best surgeons in this country, to the writer they have practically been a signal failure, and in the language of Sayre "they won't stay put."

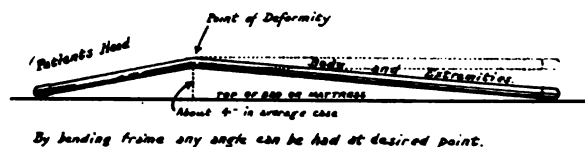
The only rational way to treat disease of the upper spine and also the lower portions, where rapid destruction of bone has occurred, is to place the patient in bed upon a frame and keep him there for as many months as may be necessary (vide illustration). This method of treatment will control deformity, lessen pain, and prevent paralysis. Extension may be obtained by bending the frame or using pillows under the shoulders; but preference should be accorded the bent frame. By this means sufficient extension can be secured in most instances to obviate the employment of a neck-collar and weights, which to say the least are exceedingly unpleasant to the patient.

If the patient is determined to be up, or if for any reason he cannot be confined, then the most effectual treatment is the use of a plaster dressing, not applied as was formerly done by "stretching the patient up," but by application of two straps, the patient lying face downward with a small pad over the stomach while the plaster is being applied to allow the stomach room during the time it is filled with food.

It is in high spinal disease that the most difficulty is encountered in the prolonged application of mechanical appliances. Many braces and jury-masts are in use, but the writer wishes to protest against their employment and repeat that nothing is worth while except plaster regardless of its unsightliness. It is certainly better for the child to look unsightly for a year or two because of this method of treatment, than to possess a deformity which must be carried throughout the balance of his natural life.



Among the conservative methods should also be included the so-called specific treatment by tuberculin. It can no longer be disputed that good results may accrue from careful and judicious employment of this agent in tuberculous disease of the spine. While no one can reasonably claim the



specific action anticipated when it was first introduced, yet in proper dosage in connection with other (dietetic and hygienic) treatment it undoubtedly induces more rapid and lasting effects than could be otherwise secured. The writer is fully aware of the unfavorable results which have followed reckless doses administered by the inexperienced (increase of fever, etc.), but such effects only show the potency of the agent and should be a reminder of the fact that it must be utilized with the utmost care. Most clinicians, among them Trudeau and others of equal prominence, agree that tuberculin should be given by the "tolerance method," i. e., a very small dose should be administered first, and after a proper interval (72 to 100 hours) a slightly larger dose, and the quantity so gradually increased thereafter that no reaction is produced.

The same general rules hold true concerning the use of tuberculin in surgery as in medicine, viz., those cases running a marked fever should be left alone until, under rest in bed, etc., the temperature subsides. Brown (Klebs: Tuberculosis, 1909)

gives the wholesome advice that (a) if tuberculin be properly administered no harm can come from its use; (b) while no immediate results may accrue it may eventually act beneficially upon the symptoms; and (c) it means from six to nine months' treatment with an intermission and a repetition. The patients most benefited are those showing some resistance to the infection where the general condition is fairly good, and such examples clinically come under the following heads: (1) Early cases with local lesions; (2) moderately advanced cases where the symptoms have become stationary; and (3) those where the physical signs are extensive but the general condition remains good and the symptoms slight. If good results accrue from the treatment, the appetite and digestion improve, the weight increases, cough lessens or entirely ceases, the bacilli diminish or disappear from the sputum, sweats diminish, and the patient expresses a feeling of general well-being.

If operative intervention be undertaken to remove liquefaction or caseation, it should be done with an aspirator under the strictest aseptic and antiseptic precautions, and after the fluid is wholly or in part removed, unless there exists some contraindication, the cavity should be injected with formalin 2 per cent. in glycerin, mixed twenty-four hours previously and frequently agitated in the meantime. For a cavity having a capacity from one-half to one pint, one-half to two ounces of the solution may be used, depending upon the anatomical location of the cavity. If the cavity refills in a short time with clear fluid, it should be reinjected; but if the fluid is found to be bloody, it should be left alone (Murphy treatment).

Where true pus is present it should be drained through a proper incision with tubes so placed as to maintain adequate drainage, and the cavity may be later injected with bismuth paste, care being exercised that every crevice is filled, otherwise no good will result. Forcible or immediate straightening of the part should never be attempted. However, forcible gradual straightening by supporting the kyphosis on pillows oftentimes does much to lessen pain and paralysis, and together with rest in bed and regulation of the diet may accomplish a great deal.

Complete removal of the implicated vertebræ, being necessarily fraught with many serious dangers, should be eliminated from the category of modern surgical treatment. Laminectomy to correct deformity is rarely if ever indicated. However, such treatment has a place to relieve pressure on the cord, thereby lessening the lightning

pains and later paralysis; but even then it should be recommended and practiced only after one to two years' treatment by rest in bed on proper frames or the wearing of suitable fixation appliances. In many cases, especially in children, marked and lasting improvement occurs after many months of treatment; not only do the pains and paralysis diminish, but resumption of locomotion may be reasonably expected; hence, laminectomy should be considered only as a *dernier ressort*.

### EXPERIENCE IN FRACTURE TREATMENT BY MEANS OF THE SUSPENDED SPLINT.

By FRANK A. CARMICHAEL, M.D., Goodland, Kan.

In presenting this subject I am actuated by a desire to direct the attention of the professions to, and solicit the trial of, a method of fracture treatment that has proven in my experience most simple, humane and satisfactory.

While the method of which I speak is not new, but is treated of briefly in most standard text-books on surgery, I am surprised that practical experience has not brought it into more general use than it seems to enjoy.

I refer to the utility of the Hodgen splint as modified by Brown and by myself. In Brown's excellently written article\* he has dealt clearly and minutely with the application of the principle of the suspended splint in fractures of the thigh and hip, and of the method of construction of the splint. I have applied the principle to treatment of fractures of the lower leg with equally gratifying results.

For the purpose of elucidating the principle a brief description of the splint and its application will be given.

Briefly the modification introduced by Brown is a refinement in the suspension apparatus by the addition of tent blocks to the suspension cords, a cheap spring balance by which the amount of traction is registered, and the limb protected to the fullest possible extent from sudden jars and shocks, the abolition of the foot block, and the substitution of a solid hammock sling for the roller bandage of the original Hodgen idea. The splint itself may be constructed by any tinsmith in half an hour, the material needed for its construction being a piece of 3-16 rod, a few small rings, or, in the absence of these, medium soft wire may be utilized to form the loops by which the suspension cords are attached. The rings or loops are attached by soldering or wrapping at the points where suspen-

\*Surg., Gynec. and Obst., Vol. 6, P. 581.

sion will most equally distribute pressure on the entire limb. Measurements should be taken from the sound limb, and the splint should be made from two to four inches longer than the limb. A very serviceable rule in judging the position of the rings for suspension is to divide the distance from the perineal extremity to the knee bend in the splint, and then place your first rings an inch proximal to the center. For the distal suspension rings this rule is reversed, and the distance is one inch distal to the divided distance between the knee and the plantar surface.

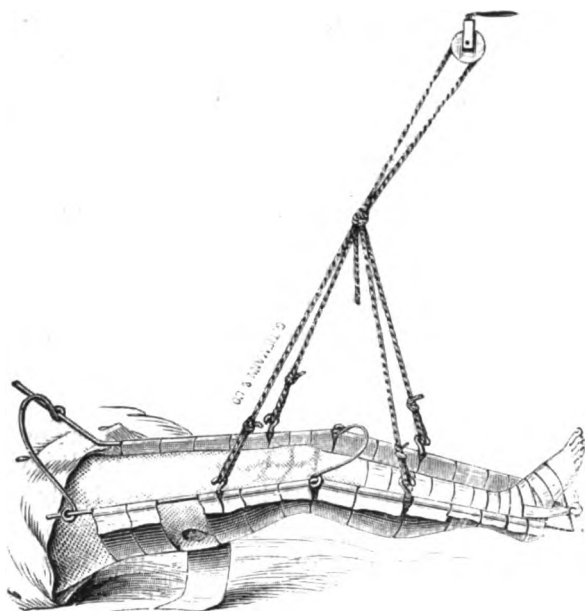


Fig. 1.—Original Hodgen Splint.

A much more simple and equally efficient method of preparing this type of splint is to attach to the frame, in lieu of the wire loops or rings where such may not be readily obtained, strips of adhesive wrappings which form a collar on each side of the point at which the suspension cords are tied to the frame. This prevents the cord from slipping and answers the purpose equally as well as the loops. Small loops or rings are fastened in the corner angles of the frame through which the traction loops pass, by means of a narrow wrapping of adhesive plaster. (See illustration.)

At each corner of the distal extremity of the splint a ring or loop is attached through which the traction tapes attached to the adhesive strips on each side of the limb are passed. At the perineal extremity the two ends of the splint are bent upward to form rings into which the arch or spreader is hooked in Brown's pattern, though I have found the arch of no practical value in my experience and have dispensed with it for reasons given later.

To the frame are next attached the suspension cords with their tent blocks. It is covered with a hammock, a piece of unbleached muslin (I usually use two thicknesses) securely stitched to one side by over and over stitching with stout thread or twine, care being taken to thoroughly secure the proximal and distal ends of the hammock so that they do not slip toward the center. The free end of the sling is next cut or torn at a distance of every three or four inches toward the center until within six inches of the stitched portion, to permit of more satisfactory adjustment, on the principle of the many tailed bandage. These ends are pinned to the other side of the frame in such a manner that a comfortable sling or hammock for the limb is made. This last step is important, as you will find that most of the minor adjustments for the patient's comfort are accomplished through slightly changing the pinning of these tails.

A small screw pulley is next fastened in the ceiling over the bed at a point where adjustment of

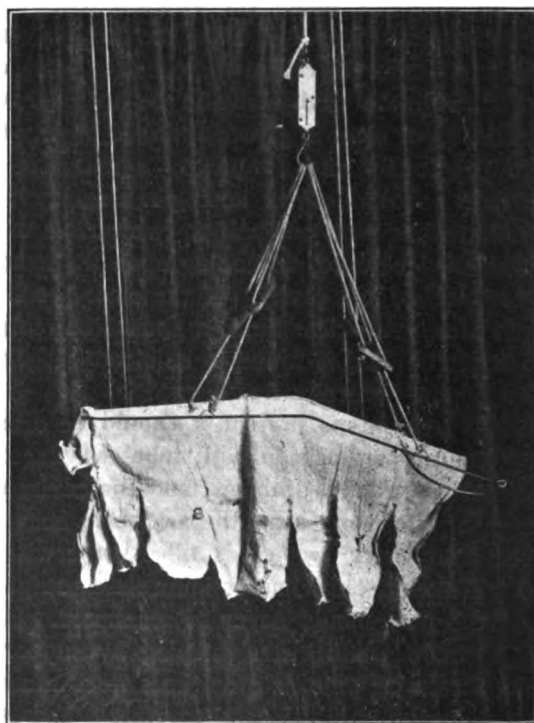


Fig. 2.—Splint suspension with hammock sling attached (Brown's modification).

traction and abduction may be made by rolling the bed in one direction or another. A piece of sash cord or cotton clothes-line rope is then passed through this pulley, the spring balances are attached, and the free end of the rope secured to the foot of the bed.

The limb is next prepared by attaching broad straps of adhesive from above the knee to just above the ankle-joint and covering with a moderate roller. The ends of the plaster are bent back upon themselves, adhesive sides together, and stitched, forming loops through which pieces of three or four inch roller bandage are passed.

The splint is now applied with little or no pain to the patient by reaching over the foot of the bed, grasping the foot or ankle of the injured limb in one hand and the calf in the other, making slow, steady, and moderate traction while the limb is elevated to a distance of twelve or eighteen inches from the bed. This traction is maintained while

until the limb hangs evenly and comfortably. The amount of traction registered by the spring balance may be determined by first noting the weight of the limb when the suspension apparatus is perpendicular. In my experience five to eight pounds has been amply sufficient in all cases regardless of musculature, and is borne with perfect comfort by the patient. I have not found elevation of the foot of the bed to the extent advised by Brown necessary (eight to ten inches), four to six inches being sufficient in all cases, and some requiring none.

The elimination of the arch or spreader permits of the closer approximation of the splint to the limb without undue pressure, and eliminates the necessity of cotton rolls or pads in maintaining proper rotation.

I have further simplified the apparatus by using tent blocks on the distal suspension cords only, the proximal suspension being maintained by a single cord which passes from one side of the frame over the hook in the balance and is secured to the loop on the other side of the frame. All adjustments of position of the splint are made

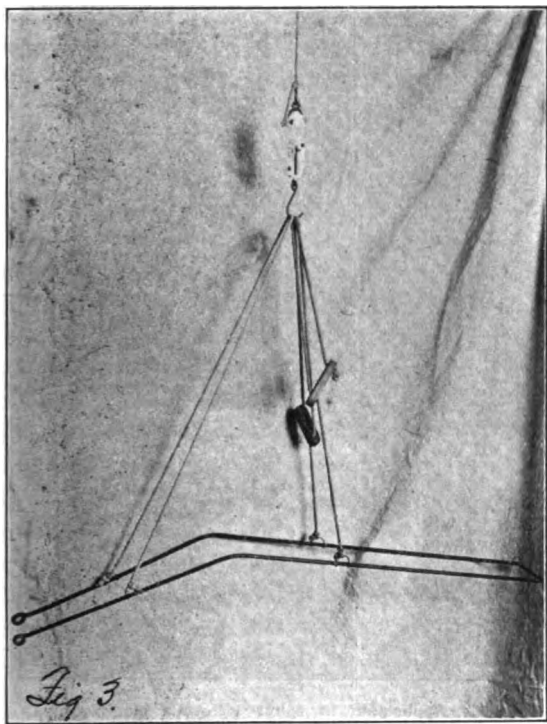


Fig. 3.—Splint frame as I have employed it, without spreader and rear tent blocks.

an assistant or some member of the family gently adjusts the splint under the limb, pressing it tightly against the perineum. The limb and splint are then gently lowered on a pillow or cushion, the traction tapes passed through the distal loops and tied in a bow knot. The suspension cords are next hooked over the hook in the spring balance and the limb gently elevated to the required height, usually ten to twelve inches.

The bed is now rolled into a position that places the suspension cord at an angle of ten or fifteen degrees with the long axis of the limb, holding the limb in slight abduction. Minor changes are now made in the hammock sling and suspension cords

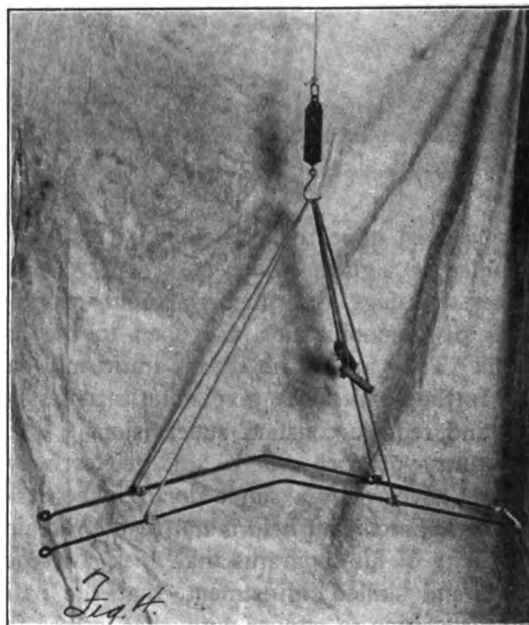


Fig. 4.—Showing method of applying adhesive plaster collars instead of wire loops.

through the adjustment of these two blocks, the proximal cord maintaining its position through friction. The use of the tent block on the main suspension cord above the spring balance may be also dispensed with as unnecessary where the pulley is used.

Every practitioner who has had an extensive fracture experience will be free to admit that his fracture cases as a rule cause him more worry and anxiety than any other branch of his work. Not only must he concern himself with the ultimate satisfactory outcome of the case, but his patient's pain and discomfort, the uncertainty of most of the fixation and traction appliances we are often forced to employ, as well as their need of frequent adjustment, are added sources of worry and concern.

The fracture box, the long side splint, Volkmann's double inclined plane, various methods of direct extension by traction weights following the idea of Buck have so repeatedly demonstrated their unreliability that it requires a high degree of optimism on the part of the medical attendant to

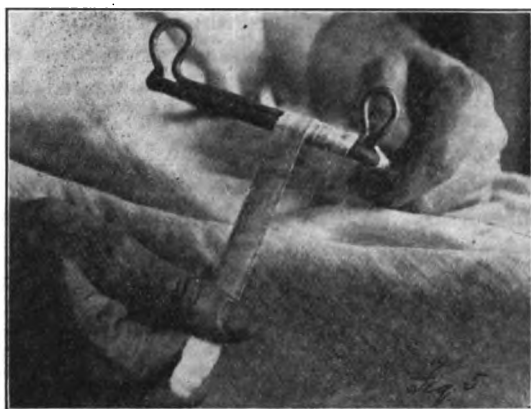


Fig. 5.—Illustrating method of attaching end loops by means of adhesive tape.

expect or even hope that satisfactory results will be obtained in a given case.

Plaster dressings and other commonly employed methods of immobilization are open to the same criticism. They are by no means uniformly satisfactory in the results they give, entail needless suffering, and require constant supervision.

In country practice where a large territory is frequently covered by a single doctor, where skilled and often intelligent help is not readily obtained, the necessity of an apparatus that does not require frequent and skilled adjustment, that the patient has no disposition to tamper with, that is free from dangers from tight constriction from swelling of the parts, as in bandaging and plaster dressings, and where the risk of angulation, improper rotation and pain incident to the use of mere fixed dressings is eliminated to the greatest possible extent, should be welcomed by the profession; and any appliance that fulfills the indication for immobilization with extension and counter-extension and gives the patient the maximum of comfort must be

conceded the method of election in all cases, but more especially those that are not under the immediate supervision of a competent nurse or within easy reach of the medical attendant. The following figure will give an adequate idea of the method of application of the splint.

Briefly, the advantages I have found in the use of this method are:

First, Simplicity. The principle is simple, the materials may be secured at any cross-roads store for a very small price. I have even constructed

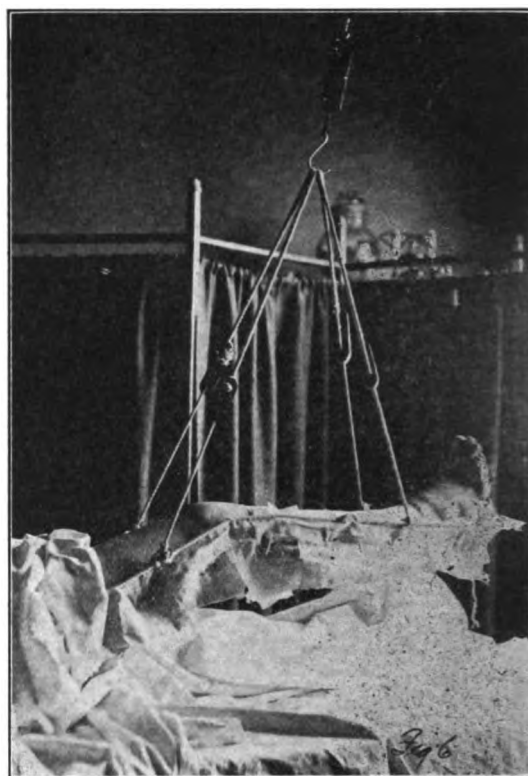


Fig. 6. Application of splint (Brown's modification).

a very serviceable splint of this type from the materials and by aid of the tools commonly found around the average farm house in an hour's time. It takes as little time to construct as any type of splint.

Second, Comfort. In my experience it is the most comfortable splint both to the patient and physician that I have ever seen or tried. The immobilization of the limb itself is secured without condemning the patient to the absolute inactivity that characterizes most other appliances. Constant traction is not a perpetual ordeal of pain, but a source of comfort, and it is impossible for the starting pains incident to muscle irritation and contraction to disturb the relations of the limb, seriously interfere with extension, or cause marked

distress. The use of the bed pan and changes of linen are accomplished without pain or inconvenience to the patient, who may, in practically all cases of fracture of the thigh and leg be propped up in bed for his meals. I might state here that the length of the suspension cord should be the greatest that can be secured, in order to obtain the maximum of comfort for the patient. The longer the suspension cord the more comfort, and the more satisfactory the results obtained. When for any reason, the pulley cannot be screwed into the ceiling and a tent has to be raised over the bed, the height of the pulley should not be less than six feet above the level of the bed. For the surgeon it is a satisfaction to know that when the splint is once applied, assuming that the adhesive strips do not "creep" or slip, it will require very little further adjustment except what may be made by some member of the family to relieve local pressure or leg tire. A slight readjustment of the safety pins in the hammock, a slight raising or lowering of the splint as a whole or of the tent blocks from time to time suffice to keep the patient comfortable. There is little or no actual pain at the site of fracture after the muscles become entirely relaxed, which usually occurs during the first normal sleep of the patient. Measurements taken on the fourth or fifth day rarely show any shortening.

Third, Utility. This method is adapted to a wide range of fractures, both simple and compound. A frame may be preserved and used over and over again. One who has employed this method for a time usually has a half dozen or more frames of different sizes that he can resort to at a moment's notice.

In fractures of the femoral neck, so common in the aged, it meets the indication perhaps more fully than any other method. These cases because of their age bear confinement poorly, suffer from shock and continued pain from which they react slowly or not at all, are prone to those pneumonic complications incident to their advanced age and forced inactivity, develop pressure sores, or pass into a gradual decline and die from asthenia. To this class the greatest possible range of a bodily activity compatible with comfort must be permitted. These patients as a rule are too feeble to profit by the advantages of an ambulatory splint.

In this type of fracture the mechanism of repair is not always clear. Functional restoration rarely implies *restitutio ad integrum* of the bony parts. More frequently functional activity is secured by excessive fibrous proliferation, the factors operative in the primary and predisposing bony absorp-

tion militating against true bony repair. The functional results I have secured in these cases have been excellent. The vertical mobility of the hip-joint rarely if ever exerts an unfavorable influence on union, though care should be exercised that lateral movements of abduction and adduction are avoided. Even in these cases where there is impaction of the bony fragments, there is less danger of disturbing this impaction by moderate and judicious traction than there is from muscular spasm.

In fractures of the femoral neck, the apparent results are apt to prove deceptive in that, while extension is operative, there may be no shortening or even a slight apparent elongation of the limb due to the laxity of the capsule and joint ligaments. A certain amount of shortening occurs, however, as a result of the fibrous character of the union, changes in the relative angle of the neck to the femoral shaft, or of bony absorption. This varies from one-quarter to one and one-quarter inches. The lesser degrees are readily compensated even in the aged by tilting of the pelvis, so that in many cases the shortening may be determined only by the use of the pelvic square.

Brown has also called attention to the efficiency of this method in the treatment of hip-joint disease, emphasizing the point that it is not immobilization so much as separation of the joint surfaces that is required in the successful treatment of these conditions, and cites a very satisfactory experience in cases in which he has employed it.

In fracture of the leg between the knee and the ankle, I have found this splint equally satisfactory. In simple fractures without laceration of the joint ligaments I have not found it necessary to apply other immobilizing dressings than the adhesive strips, which in these cases are merely to hold the splint in position. In Pott's fracture the application of a light plaster splint to maintain over-correction of the deformity is advisable. This may safely be removed at the end of ten days.

I have had no case of excessive callus formation in those treated by this method, but in one case, an alcoholic male aged fifty-seven, with a fracture of both bones of the leg, there was no appearance of callus and no evidence of union after three weeks. In this case I was obliged to abandon the splint, place the limb in a plaster dressing, and get the patient out on crutches before there was sufficient irritation at the site of fracture to stimulate reparative effort.

Swelling, the usual annoying concomitant of fracture, is much less marked and persistent than



in other methods of treatment due to the elevated position of the limb.

The uniformly satisfactory results that I have obtained from the employment of this principle lead me to heartily endorse the desire of Brown that it come into a more general use among the profession. Its wide range of adaptability, simplicity of construction, economy, efficiency, and humanitarian attributes are sufficient in themselves to warrant a thorough trial by the profession.

The personal satisfaction of the medical attendant in being able to absent himself for days, if necessary, with full confidence in the continuation of painless and efficient traction is a factor of some value. For restless children and those who bear restraint badly, its employment will prove a revelation to those who have never tried it. I recall a case of a boy of sixteen with a fracture of the thigh (junction of upper and middle third), whom I saw but once from the time the splint was applied until I called to remove it, yet the results were ideal without shortening or knee stiffness.

Since employing this method, I have had no case of shortening in fractures of the thigh or leg, and I have given it a varied and impartial trial in a sufficient number of instances to conservatively urge its more extensive employment by the profession.

### **A SERIES OF UNUSUAL FRACTURES OF THE ANKLE.\***

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The main point which we wish to emphasize in this little paper is the importance of the x-ray in all cases of injury of the bones of the foot. Much has been said and written regarding the various forms of fracture and their diagnosis, but the x-ray demonstrates their presence so clearly and beautifully, as shown in the accompanying diagrams, that its use should be resorted to early, particularly in that form of injury commonly designated as "sprained ankle."

The cause of the fracture is often so slight that the disproportionate injury is overlooked, and many patients are crippled indefinitely simply because the physician has made a diagnosis of "sprained ankle" instead of recognizing that he has to deal with a fracture of one of the small bones of the foot.

The commonest cause of this injury is a "turning over" of the ankle. Stimson mentions it as occurring frequently in army men on a long march,

and dancers also suffer from this same fracture of the fifth metatarsal bone.

Case 1. A man, aged thirty-eight, slipped on a wet cement pavement and turned over on his ankle. He was a well nourished, strong, laboring man, and

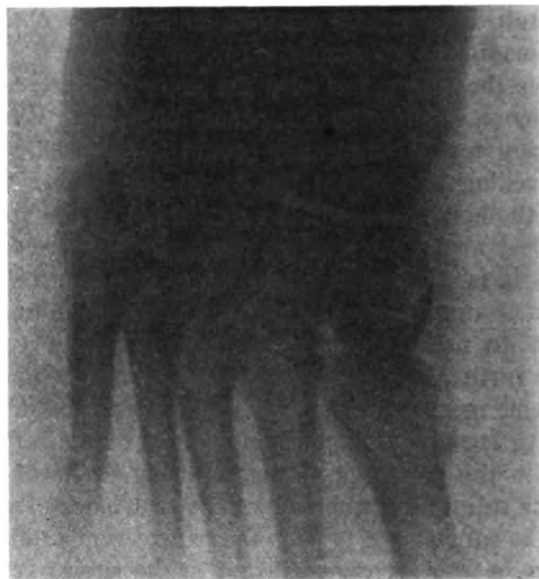


Fig. 1; Case 1.

for the first few hours experienced little or no pain. Later his foot swelled rapidly and he had to hobble home. He was seen by me the same day. His foot was so swollen that his shoe had to be cut

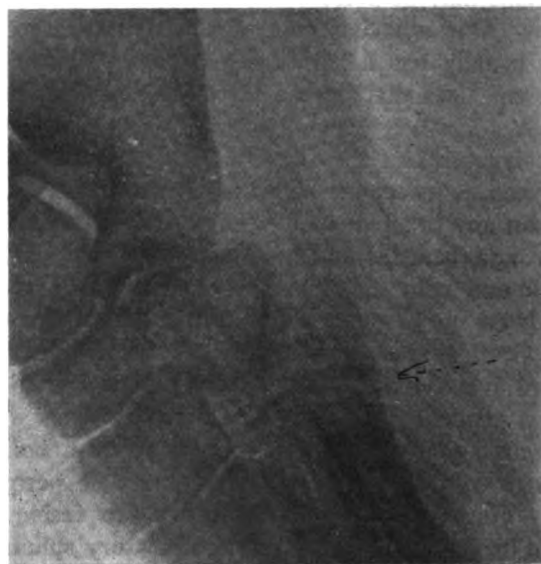


Fig. 2; Case 1.

off. Evaporating lotions (alcohol, etc.) were applied and this treatment continued for three days, then a basket adhesive strip was put on. The pain still continued for another week when an x-ray

\*Read before the Long Island Medical Society, Jan. 5th, 1912.



plate was taken, as shown here, revealing a fracture of the fifth metatarsal bone at its proximal end. A plaster cast was applied and kept on for



Fig. 3; Case 3.

two or three weeks. The man experienced no further pain.

In examining this foot there was absolutely no crepitus, and the only time he experienced any-



Fig. 4; Case 3.

thing which would lead us to suspect a fracture was when pressure was made on the fifth metatarsal bone toward its base. This seemed to excite a little more pain than any other kind of pressure and led us to suspect a fracture.

Case 2. A man, twenty-eight years old, sustained his injury while carrying a weight of probably seventy-five pounds down a flight of stairs. He thought he was at the bottom of the stairs and stepped down, when there was still another stair, turning over on his ankle. He complained of the same symptoms as in Case 1. This man was of slight physique with very prominent bones, but even here we could not demonstrate a fracture until we had the x-ray picture taken, when it appeared very clearly. In both of these cases the fracture is incomplete, that is, extends about half-way across the bone. The pain is caused probably by the soft parts coming between the two fragments and getting a pressure effect.

Case 3. A man, fifty-two years old, large bones, not well nourished, was walking along a cobble street. As in the two former cases, he turned over on his ankle, with the same train of symptoms. The x-ray was employed promptly and a similar condition found.

All three of these cases made a prompt recovery on application of the plaster cast and immobilization for from two to three weeks.

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### COMPOUND FRACTURES.

By JOHN N. DIMON, M.D., New London, Conn.

With the old saying, "There is nothing new under the sun," ever before us, it seems almost impossible for one to interest his readers in a subject which has been discussed and re-discussed among surgeons for many years.

Comparing the treatment of such injuries years ago with the methods of to-day may seem unfair to the old-time surgeons; so I shall quote some of the histories of the past and describe, so far as my memory serves, the most interesting and instructive of the cases which have come under my personal care in fifteen months of ambulance and hospital service and about twenty-eight years of private practice.

What is a "Compound Fracture?" Lewis A. Stimson defines it: A compound fracture is one in which a coexisting wound of the soft parts establishes communication between the fracture and the air.

*Causes.*—This class of fractures may be caused by direct violence from without inward, e. g., by the limb being run over by a railroad train, street-car, or any horse-drawn vehicle having metal tires, falling bodies, such as parts of buildings, limbs of trees, machinery, such as is used

in stamping metals into form, crushing impact of a weapon, or in a case in my ambulance service, the kick of a horse. Cannot fracture of the jaw in extracting a tooth be classed under this head? Fractures from within outward comprise those cases where the bone was broken and a subsequent fall of the injured person caused a fragment to penetrate the soft parts and reach the air. I have remarked that in these cases the upper fragment is almost always the aggressor.

Case 1. A young man, in trying to escape a pursuer, leaped from a roof a distance of thirty feet, struck the side-walk, fracturing the left femur about three inches from the knee-joint, and in falling forward the upper fragment penetrated the tendon of the quadriceps extensor and the integument. It required the combined efforts of four surgeons to reduce the displacement. The result was a useful limb with a minimum of shortening.

Case 2. By the breaking of a painter's scaffold, a man of fifty-nine years slid a distance of fifteen feet, striking on his heel and fracturing the tibia in the middle third, causing a protrusion of the upper fragment of about two inches. Result, uncomplicated recovery with a perfectly useful limb.

Case 3. A boy of ten years jumped from a shed-roof, a distance of ten feet to the ground, fracturing the left tibia in the middle third, the upper fragment protruding three inches from the wound. This case will be described in detail later.



Fig. 1. Extensive injury to both bones and soft parts. Amputation, two inches below elbow-joint. Good result and useful joint. Arm had been crushed between railroad cars in act of coupling.

From the cases above cited it may be inferred that had the subject not fallen after the bone was fractured, the fracture in each case would have been simple or possibly comminuted or multiple, but it is *that fall* which produced the external wound.

A special variety of compound fractures, characterized by much laceration of the soft parts

and splintering of the bone, is found in those caused by fire-arms where a bullet or a charge of shot enters the limb and breaks the bone by direct impact. These cases owe their gravity



Fig. 2. Compound comminuted fracture of left tibia and fibula by railroad train. Complete crushing of soft parts. Amputation at junction of middle and upper third of leg. Good healing, but some contracture of ham string tendons.

not only to the extensive injury done the bone but also to that inflicted upon the soft parts, including the large vessels and nerves (Stimson).

In diagnosing cases of fracture where the soft parts are lacerated, it may be noted that the external wound may not communicate with the broken ends. Such a case would be a "simple fracture complicated by a wound" (Stimson).

In cases of doubt unnecessary manipulations should be avoided, as they might convert a simple fracture into a compound one.

The prognosis in any case should be guarded, as unforeseen complications may arise, such as necrosis, suppuration, and, as is frequently the case, interference by non-professional persons. This last cause of trouble requires no explanation.

*Treatment.*—The treatment of compound fractures, years ago, was amputation in almost every case of fracture of the extremities. So far as the history of such injuries enlightens us, no effort was made to save the limb. The thousands of empty sleeves and trousers which are seen every Memorial Day are eloquent reminders of the surgery practiced in the Civil War. A veteran, in answer to my question as to the treatment of broken limbs, said he had seen piles of amputated ones outside the hospital tents, many with boots or shoes still on, and he had known of cases where the surgeons had amputated sound limbs.

Apparently conservative treatment was not practiced to a great extent. That it was possible to save limbs, may be inferred in the case of "Fighting Bob" Evans. In the *Tribune* we read: "A Confederate sharp-shooter riddled his left leg. He tied his handkerchief over the wound and ran on. The sharp-shooter put a ball through his right knee. As he fell, the

Confederate fired again and took away part of his foot. Evans borrowed a musket and shot the sharp-shooter through the head. When they got the Yankee officer to the Norfolk hospital, after the battle, preparations were made to amputate both legs. Though weak from long torture, the fighting gleam came into his eyes at this announcement. When the surgeons appeared, ready for work, Evans braced himself in bed on his elbow and drew a revolver from under his pillow. He announced that the pistol contained six cartridges, one apiece for the first six surgeons who tried to destroy his power of locomotion. He kept his legs." A conservative surgeon was "Fighting Bob" to save to our country the life and services of such a brilliant naval genius!

The treatment in all cases of compound fracture should be determined by the amount of injury to the soft parts. Complete loss of blood and nerve supply, with no chance of a collateral circulation or repair of nerve trunks, would preclude the hope of saving the limb.

"The Surgical History of the War of the Rebellion" cites cases of the humerus "pulverized by bullets" where amputation or excision was refused. Some pieces of bone were removed, cold water dressings and drains applied, passive motion instituted, with the result of limited voluntary motion and useful limbs. In wounds in this region (head of humerus) the statistics are of interest. From 1830 to 1871, in injuries involving the shoulder-joint, result from expectancy—recovered 87, died 86; excision—recovered 215, died 156; exarticulation—recovered 286, died 347. It is reasonable to suppose that with the better facilities for treatment and improved methods of the present day the number of saved, both life and limb, would show a better percentage.

Another factor in decreasing the fatal or maiming results can be claimed for the steel-jacketed, small calibre small-arms projectile, as compared with the large calibre, all-lead bullet.

In all cases of compound fracture strict surgical cleanliness should be practiced. The wound should be cleaned of all foreign particles. No blood-clots, shreds of tendon, fat, etc., should be allowed to remain between the ends of the broken bone; the ends should be approximated, the wound closed, and, if thought necessary, a drain left in it and the limb confined in suitable splints until all inflammation has subsided, when a permanent splint of plaster or soluble glass may be applied, a window being left for the

purpose of dressing the wound. If union has begun and the wound is healthy or nearly healed, I never hesitated to allow my patients to go about on crutches, or at least to be wheeled from place to place. The moral effect is certainly good.

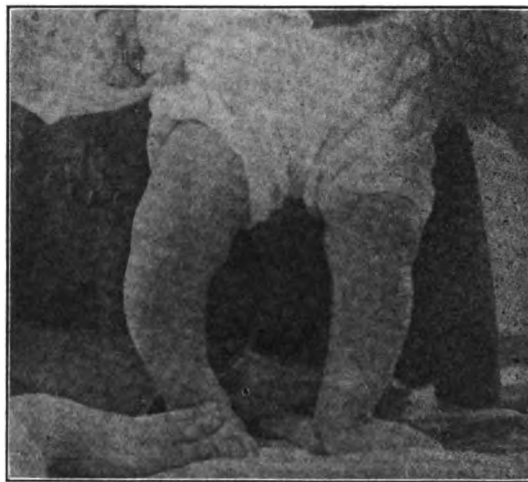


Fig. 8. Bow-legs—before Fowler's operation.

In compound fractures of the skull, the wound may have to be enlarged and the depressed plates of bone raised; the wound is closed and dressed antiseptically. I remember a case of a man with a compound, comminuted, depressed fracture of the parietal near the vault, caused



Fig. 4 Bow-legs; result one month after Fowler's operation.

by a falling brick. When brought in he was unconscious. The wound was enlarged somewhat, allowing a clear view of the depression, which was about an inch in diameter. The splinters of bone were cleared out and the wound closed. The man regained his senses and insisted on leaving his bed in less than a week.

In compound fractures of the ribs or vertebrae, fortunately rare, removal of depressed splinters, if any, and drainage may be the only treatment, except to wait.

In those cases where reduction is difficult on account of the extreme protrusion of the bone, it is better to enlarge the wound than to saw off enough bone for replacement, although I remember one case in which about an inch of the upper fragment was removed by the saw to facilitate reduction. Union was somewhat prolonged, but the result was good, with very little shortening.

Within the last thirty years, the operation for curing bow-legs has become very common. It

breaking the bone. The wound is then closed and the limb encased in a plaster and treated as in any other compound fracture.

Case 3, mentioned above, presented many interesting features. The boy described the accident as "striking on his feet, the leg doubling under him, and his falling forward on the ground."

It required great force, under chloroform, to reduce the fracture. The hemorrhage was very profuse. The wound was thoroughly cleaned and sutured with silk and the limb placed in temporary splints. The next day, the position of the fragments was carefully corrected and a plaster dressing with a window applied. It was, perhaps, a little early to apply a permanent splint, but I had very little confidence that the people would let the "Doctor do the ordering and they simply look on." The wound healed kindly, and in two weeks a new cast was applied and the patient allowed to sit at the window in a reclining chair, it being in the summer. In two weeks the plaster was removed, and the union being firm I placed light, moulded felt splints on the limb and allowed some pressure on the floor.

About six weeks after the injury a small, red spot appeared just below the scar, and on being incised, a small piece of bone was removed. The wound healed promptly and up to the present time, six years, there has been no trouble. One curious result was that the boy being somewhat bow-legged, the injured limb became straighter than the other. Since his discharge as a patient he has had perfect control of the limb, and its growth, as compared with the other, was the same.

One annoying feature as to the care and cleanliness of this case, was the prevalence of flies. The parents were foreigners and no persuasion could induce them to provide screens for the windows, and it was a case of fight flies and use antiseptics.

In conclusion, I will say that in my opinion the open operation is justifiable in those cases where approximation of the ends is impossible, or in cases of non-union. Converting a simple into a compound fracture and the use of plates and screws may be elegant surgery and safe in experienced hands, but the average surgeon, removed from hospital and consultation advantages, must do and does the best his limited appliances permit, and his results are generally all that can be desired.



Fig. 5. Negro child, two years old. Bones broken by Fowler's method. Good result in one month.

was my good fortune to see the operation performed in St. Mary's Hospital, Brooklyn, N. Y., by the late Dr. George R. Fowler about 1883, and while attending a clinic in Berlin, Germany, in 1884 I exemplified this method before a class of students. Since then I have employed it many times, with the happiest results.

The operation consists in cutting down on the crest of the tibia at the place of greatest curvature, placing a bone-chisel at right angles to the crest in the wound, and with a mallet cutting half-way through the bone, then grasping the limb with the hands on either side of the incision,

**THE CANCER PROBLEM TO-DAY.\***

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My object in stating my subject as the "cancer problem to-day" as distinguished from that of the past is because it presents an entirely different outlook. In this respect it is analogous to the tuberculosis problem or any other of the great medical problems, in spite of the fact that we are still in the dark as to its cause and a cure is still to be discovered.

It has been estimated that there are 80,000 cases of cancer in the United States to-day, and that out of every eight women who reach their thirty-fifth year one dies mercilessly tortured by this most baffling disease of our times. The question arises: What are we going to do about it? In spite of extensive laboratory and clinical research we are—at least to the casual observer—no nearer to the goal than we were in the distant past. If statistics were positive it would appear that the disease is on the increase. This increase, however, is probably more apparent because of the fact that better diagnosis has brought to light more cases and also to the general increase in longevity. Notwithstanding appearances it can be stated that from a review of all available records cancer is not on the decrease.

Occurring as it does in individuals in all walks of life, among peoples of all nations and countries, and at all ages, it would seem that available material for study is not lacking. Even the lower animals, the fish and the birds are not exempt. But while the history of cancer in the human race is a most horrible one, and extensive study has brought us to no definite goal, the study of the disease, both chemical and clinical, has not been entirely in vain.

Several workers seem well advanced toward the threshold of success, and in the future we will, I firmly believe, be able to cope with the most dreadful foe of mankind by means of a serum. But we are concerned to-day not with the question, what are we going to do in the future, but how are we going to cope with the 80,000 cases in our country at the present time, the thousands which will develop next year and the next.

Leaving aside all existing theories, regardless

how plausible, and getting down to the facts, we find that cancer—and by that term we mean all malignant growths, carcinoma and sarcoma—is in most cases a secondary disease. A "benign tumor" or chronic ulcer, a mole, a scar, in other words, a point of chronic irritation, forms the foundation of malignity. Keen has shown that no case of carcinoma of the skin has ever been reported which did not begin in a pre-existing lesion. Studies in the pathology of the living, as viewed on the operating table, point to the same conclusion as regards the gastrointestinal tract; a pre-existing ulcer can now be shown in 50 per cent. of cases. In the mouth it is a simple matter to demonstrate the pre-cancer pathology, a former ulcer, an irritating tooth or plate, or the irritation from pipe smoking, etc. The most striking example of pre-cancer pathology is to be found among the people of Kashmir, where the abdomen is a frequent site of cancer, as compared with the rest of the world, in which it is practically never seen. The skins of these people have been frequently burned and irritated by the braziers which they carry. In the internal organs the pre-cancer pathology is not so easy to demonstrate, but there are many conditions the presence of which should not be considered innocent even though they are not producing marked symptoms. This is especially true of gallstones and calculi in the various other structures.

Tumors, especially adenoma, fibroma, papilloma and cysts are among the so-called innocent neoplasms which occur in various parts of the body and often predispose to cancer. In the uterus the benign growths become carcinomatous in about one out of fifty cases, and sarcoma in one out of thirty. Most of the tumors of the parotid sooner or later become sarcomatous. Eighty per cent. of the breast tumors are or will become malignant.

In the future some hemolytic test will be developed which will aid greatly in the early diagnosis, especially of cancer of internal organs. For the present, however, we must depend on what clinical knowledge we have at our command. We must ever be on the lookout for the pre-cancer conditions, for here the principle of "the ounce of prevention" can well be applied. But we cannot expect that every individual who has a mole or a scar is going to present himself for treatment. Ulcers wherever located should be cured; but in the case of moles, etc., which have been present for a long period and suddenly begin to enlarge or grow, as it were, we should not be too content to watch the case. The history is suggestive; the operation of removal perhaps trivial and safe, and even though it should

\* Read before the Kalamazoo Academy of Medicine, March 26, 1912.



not prove malignant no harm is done, while delay may possibly be fatal.

In the breast, by means of the Warren incision, any suspicious lump can be removed without any visible resulting scar. The microscope will substitute for suspicion an exact diagnosis and perhaps be the means of saving life. Only yesterday I operated on a young woman of thirty-five for breast cancer. She had been to her family physician for treatment for a small lump which she had noticed in her breast. He immediately put her on observation where he kept her for four months. The patient then came to me having made her own diagnosis. The physician was much surprised when he heard of the operation findings, as he said the glands were not enlarged. She may prove a martyr not to professional ignorance but professional inertia. Crile has said: "I have often thought that pending a more general enlightenment it would be a boon to mankind if the words 'glandular enlargement and cachexia' as denoting symptoms of cancer were stricken from our text-books of medicine. These are terminal symptoms and indicate that surgical opportunity is forever lost."

This apathy on the part of the profession is hardly explainable, since we see physicians bringing their wives and mothers to the hospital after they have been watched and a positive diagnosis made which only too often carries with it the prognosis. How often has the physician as well as the patient been an interested spectator waiting to see whether the firebrand on the roof would burn itself out or burn down the structure. There is an inexplicable inertia with respect to protection from cancer, an inertia that is strongly suggestive of the paralysis of fear which the bird feels in the presence of the serpent.

If we were to do justice to our patients we must learn that when a woman consults us with a small mass in her breast which is enlarging, it should be excised and not watched; that when a man comes with an ulcer on the lip which does not heal under proper treatment it should be removed; that when a patient consults us who has an obstruction of the pylorus as shown by food being removed the following morning when the stomach should be empty, he is at least entitled to an exploratory incision, since the condition is surgical regardless of its pathology. When a woman presents herself with a history of abnormal menstrual symptoms, a discharge, or pain, she is entitled to a thorough examination before being told that she must expect these symptoms, as all women have them during their change of life. Our patients come to us for

a cure and not for a diagnosis. Exact clinical diagnosis is not the ultimate aim or excuse for our existence—at least not in America. Why should a physician delay for a positive diagnosis when a cure is what the patient wants? Why should he delay and turn a trivial operation into one of great magnitude, with often no prospect of a permanent cure, as we find in the case of the breast.

So much for prevention—the great beaming light of hope—but what of the cancer victim? What has the profession to offer? What progress has been made? To the patient with the clean-cut diagnosis of tumor, enlarged glands and cachexia of our text-books we can offer but little more than in the past. A palliative operation to relieve the pain, to remove the foul odor, or to prolong life is all that remains. Some of the serums, as Coley's for sarcoma and Vaughn's for carcinoma, have given good results in a small percentage of cases in conjunction with operation.

In the early cases the result is different, and the fact that the profession and in turn the laity are not familiar with the truth has made both doleful and skeptical. What were the results of the past and what improvements have been made? Twenty-five years ago, in a series of 364 cases collected by Butlin which were operated for cancer of the larynx, esophagus, kidney, thyroid and pylorus, two-thirds died of the operation. Of the 126 survivors only one was known to be alive and free from the disease three years later. Gross, the foremost surgeon of his day, is quoted as saying that he had never cured a case of cancer of the breast.

Is it a wonder that the laity, and especially those of the older generation, should pause before an operation?

Thanks to Halsted in the case of the breast, Wertheimer in uterine cancer, and many other workers, the results of to-day in the hands of competent surgeons are quite different. By means of a perfected technic, the operation mortality in breast cases is less than one per cent. At the Johns Hopkins clinics 47 per cent. of all cases of breast cancer operated upon have remained well for three years or more. Of the selected cases, or rather those that seemed clinically favorable at the time of the operation, 75 per cent. were cured. Surely a revelation in view of the past.

William Mayo, in a recent article, says that "of all known diseases cancer of the stomach should be considered surgical." Appendicitis is recognized as a surgical malady by practically the entire medical profession of the civilized world, although a large percentage of cases would recover under non-

surgical treatment. Strangulated hernia is considered purely surgical and any physician failing to have such a case operated upon promptly would be severely criticized, yet occasionally an artificial anus forms spontaneously and the patient recovers. Cancer of the breast is recognized as wholly within the domain of surgery, yet the cancer quack with his paste cures an occasional case. Cancer of the stomach does not even have a remote chance of the quack's occasional cure. When brought face to face with the fact that cancer exists in the stomach the apathy of the medical profession is equaled only by that of the patient. The diagnosis of cancer of the stomach is enough to satisfy the patient, his family and his friends, and is received with Oriental-like resignation as being the fate from which there is no hope of escape. What are the facts? Cancer of the stomach, when still localized, gives operative results as good as those after operation for cancer in any other part of the body. That which is true of the stomach and the breast is applicable to most parts of the body which are affected by cancer. In some locations, such as the thyroid, the prognosis is very bad when the disease is diagnosed. But if we are to succeed with cancer in many locations, we must act at once when suspicion is aroused, not waiting for positive symptoms, and thus by means of the perfected technic of our modern surgical methods give relief and a cure to a goodly number of the great army of these sufferers.

In conclusion I wish to state that I have no apology to make for the selection of the title of my paper this afternoon, though I have nothing new to offer. But if I have succeeded, even though in a small way, in impressing upon you the fact that the profession has kept pace with Rip Van Winkle on the cancer problem, that the time is ripe for an awakening, and that the great need in this problem of to-day is education for the profession as well as for the laity at large, I shall feel repaid for my efforts, and the taking of your time is amply justified.

As Crile has said, "The public is entitled to receive from the profession all the enlightenment required for self-preservation. It may be difficult to persuade a man to change his political tenets or his religious creeds. Sentiment here may bind him closely. There is no tie of sentiment between a man and his cancer. Enlightenment ought to be easy and effective."

The medical profession and not the laity are responsible for the high primary and remote mortality of malignant disease, and until the former

and the general practitioner in particular assumes the same stand he does in strangulated hernia and appendicitis, we cannot look for a material change in our cancer statistics. It is up to us to do our duty to our patients and our calling and preach the gospel of hope and early operation.

The points which I wish to emphasize this afternoon are:

(1) That cancer has a pre-malignant state which is absolutely curable.

(2) That the time is past when the profession should assume a passive attitude in suspicious malignant cases since operative technic is developed to an extent to-day that there are practically no deaths from the operations per se, and

(3) A large percentage of cancer cases are absolutely curable if the family physician does not cause the fatal delay in his desire for a positive diagnosis.

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## ETIOLOGY OF COMPLICATIONS FOLLOWING ABDOMINAL SECTION.\*

By RAYMOND R. WESTOVER, M.D., Brooklyn, N. Y.

Every normal convalescence from operation is marked by certain minor discomforts which are, as a rule, either functional or local, so that on the third or fourth day the patient feels fairly well. On the other hand, these discomforts may persist and become exaggerated, or a variety of phenomena may arise which retard recovery or threaten life. It is for the consideration of the causative factors in these complications that this article is presented.

*Shock.*—One of the most frequent and alarming effects of abdominal section is shock. Shock indicates an extreme depression of a patient's vital forces and is usually observed either during or shortly after operation. This condition is often caused by prolonged anesthesia (the administration of an anesthetic for two hours or more is always followed by depression of varying degree even though the operation be a minor one). Excessive loss of blood in a plethoric individual, or a moderate loss in an anemic one, will speedily induce shock. Prolonged exposure and manipulation of the abdominal viscera, with the usual rapid radiation of heat, particularly from the intestines and omentum when lifted out of the abdominal cavity, is one of the most prolific factors. Constitutional disturbances predispose to shock, such as a tuber-

\* Read before the Staff Association of Williamsburg Hospital, December 4, 1911.



cular tendency, or malignant disease, or chronic degenerative changes in the vascular system, the heart, lungs and kidneys. All these classes of patients have low resistance, are profoundly depressed by any operative procedure, and recuperate slowly.

*Secondary Hemorrhage.*—Secondary hemorrhage following abdominal section is nearly always due to faulty technic and is most apt to embarrass the young surgeon. The abdominal organs are so richly supplied with blood that death may result in a very short time if one of the ligatures controlling an important artery or vein slips after the completion of the operation. The chief causes of this complication are as follows:

1. Extensive capillary oozing.
2. Defective tying.
3. Cutting too close to the ligature.
4. Undue traction on ligature after tying.
5. Shrinkage of tissue within the grasp of the ligature.

An extensive capillary oozing most frequently occurs where numerous intestinal and omental adhesions have been broken up, also where raw surfaces have been left denuded of the peritoneal covering by the enucleation of dense inflammatory masses. There may be a great many of these minute bleeding points, any one of which in itself is insignificant, but all taken together may cause a dangerous loss of blood. Catgut tied in the ordinary square knot and cut close will often swell, soften, and so loosen the ligature. When tissues are extremely edematous and vascular it is a dangerous procedure to enclose too large an area in a single ligature, as the structures may shrink and loosen. The same is true in the removal of packing and drains. In the latter condition we are confronted with an additional difficulty, since there is a plastic lymph thrown out. This newly formed material is extremely tenacious, and unless great care is exercised in the removal of the drain we will set up a free oozing.

*Breaking Down of Incision with Abscess Formation.*—This condition usually occurs within ten days following a laparotomy and is always the result of a pyogenic invasion, the bacteria gaining entrance to the deeper structures by means of the skin sutures, combined with traumatism of the tissues themselves, as occurs in unnecessary handling and rough retraction of the edges of the wound, carelessness in controlling bleeding, and not avoiding strangulation of fragments of tissue by ligatures. This complication may prove serious and unless appropriate measures are readily instituted to evacuate the discharge we will have a most important factor in the production of hernia and fistula.

*Postoperative Septic Peritonitis.*—If we accept the more modern views of the pathology of peritonitis we must consider all forms as septic or infectious. There are nevertheless certain pathologists who maintain that there exists a simple postoperative traumatic peritonitis without infection. This view would seem to be supported by various observers who have found no growths in cultures taken during operation; yet occasionally these patients would exhibit on the third or fourth day many of the symptoms of a septic peritonitis. However, it is not the purpose of this paper to discuss a pathological question, as we will only consider the forms which have been proven beyond question to be true inflammations.

(a) Traumatic or plastic peritonitis is a regenerative process and occurs to some degree after every abdominal section. It is slight and circumscribed after simple operations and extensive when large raw surfaces have been left uncovered. In these localities the inflammatory products first unite adjacent structures, and later become converted into fibrous tissue or bands known as adhesions. This condition is always the result of trauma, either within or without the abdominal cavity.

(b) Postoperative septic peritonitis. This complication, often the most serious and dreaded by the surgeon, is invariably produced by the entrance into the peritoneal cavity of pyogenic organisms. It is, therefore, primarily a localized condition, which gradually extends over the peritoneum until it is checked by leucocytic barriers, in Nature's effort to limit the infectious process. There are several factors which are important in this walling-off process: First, the patient's age; second, the vital resistance as recorded by the opsonic index; and third, the virulence of the infecting organism. In greatly depressed patients, subjected to a prolonged abdominal section in which there is considerable traumatism to the peritoneum and a fair amount of capillary oozing, the chances for a serious infection are greatly increased. It is also a clinical fact that patients suffering from a pre-existing chronic cardiac, renal or hepatic disease are prone to be carried off suddenly by the so-called terminal infections, which are now recognized as due to pathogenic bacteria. Of these bacteria the streptococcus is the most virulent; the staphylococcus ranks second, which under favorable conditions may give rise to an extensive serous inflammation. Next in importance come the colon bacillus, bacillus pyocyaneus, bacillus typhosus and the micrococcus. The gonococcus, while occasionally found in purulent collections in the peritoneal cavity, seems only in rare instances to be cap-

able of exciting an active inflammation in serous membranes. These pyogenic organisms find entrance into the abdominal cavity in a variety of ways: First, by liberation of infected matter during an operation. Second, by injury to the intestinal walls which permits a direct escape of the pus producing germs from the bowel; and third, bacteria may be carried into the peritoneal cavity by the surgeon or his assistants, on the hands, sponges, instruments or ligatures.

*Septicemia and Pyemia.*—These occasionally complicate abdominal section. The distinction between these two conditions, while important from a surgical standpoint and convenient on pathological grounds, is largely artificial, as septicemia and pyemia are chiefly two different stages of the same general septic process. In the first, pyogenic bacteria gain entrance to the blood and circulate throughout the tissue, giving rise to characteristic symptoms of septicemia. The process may be held in check at this point, or it may go on to the formation of focal necrosis and suppuration at some remote point from the original portal of entry with the attendant symptoms of a pyemia. The etiology of these two conditions is practically the same as that of postoperative septic peritonitis.

*Pleurisy.*—As a complication pleurisy is rare, although it occasionally occurs. It may be either tubercular, associated with a tubercular peritonitis, or septic, a part of the general suppurative condition.

*Pneumonia.*—Pneumonia following abdominal section is a much more frequent complication than pleurisy. It is predisposed to by (1) excessive exposure of the body during operation. (2) By the irritating effects of anesthesia. (3) By the inhalation of foreign matter. (4) By the lodgment in the pulmonary capillaries of septic emboli. Pneumonia is often due to a prolonged and unnecessarily free use of the anesthetic, and this is to be distinguished from the embolic variety by its appearance within the first twenty-four hours.

*Ileus.*—Ileus arising after laparotomy is usually the result of some interference with the normal intestinal peristalsis by one of the following causes: (1) Strangulation of a knuckle of intestine under an adhesive band; (2) adhesions of the bowels to raw surfaces; (3) adhesions of the bowels among themselves about a septic focus; (4) the incarceration of a loop of intestine through a hole in the omentum; and (5) a simple twist of the bowel upon its mesenteric axis.

*Peculiarities of Pulse and Temperature.*—Certain of these are worthy of notice. The pulse is one of the most important indications of a patient's

general condition and any deviation from the normal should be watched with the greatest care. In order that the pulse may act as a guide in forming an intelligent opinion, a previous observation is of the utmost importance. When an operation has been long and exhausting the pulse rate may be greatly increased and persist so for a number of hours without causing anxiety unless it shows signs of weakness. It is a mistake to consider even the widest variation of the pulse rate as indicating in itself a necessarily fatal result. The same is true of the temperature. Subnormal temperature suggests depression arising from shock, hemorrhage, or a gradual weakening of vital functions preceding death. An elevated temperature may persist for several days and then subside without apparent cause. As to etiology of this, investigators differ, but most agree that the high temperature is due to the absorption of fibrin ferment and the products of aseptic tissue necrosis. Occasionally an excessive temperature suggests malaria and calls for a blood examination, but more often it is due to an infection either local, as in the incision, as stitch abscess, or general, as a beginning septic condition.

*Vomiting, Tympanites, and Excessive Pain.*—These are conditions which can hardly be classified as complications unless they become excessive. Nausea and vomiting follow the administration of anesthetics in the majority of cases, especially if prolonged. Here the personal equation is important as discovered at some previous experience. Tympanites, when excessive, is a most annoying condition. It is due to intestinal fermentation and atony combined with constipation. If associated with other symptoms it may suggest a beginning peritonitis. Kelly reports two cases in which death was due to a paralysis of the diaphragm from excessive tympanites.

Excessive pain is seen in highly neurotic and sensitive individuals. It may mean functional nerve disorder, hysteria or the formation of new adhesions.

*Suppression of Urine.*—Following all abdominal sections we find a diminution in the amount of urine secreted. If this suppression continues, the diagnosis lies between a nephritis and a ligation of one or both ureters.

*Fistula.*—Fistulae may be of two kinds, urinary and fecal. (1) Urinary fistulae are always due to traumatism of the urinary tract and faulty technic. Fecal fistulae are more common and more serious on account of their exhausting nature. Their chief causes are disease or injury to one or all of the

coats of the intestines, and pressure necrosis from packing and drains. The prevention of these causes usually lies within the power of the operator and their appearance is evidence of faulty technic.

**Sudden Death.**—This complication is rare, but occasionally occurs. It is generally due to embolism or thrombosis. These conditions are apt to co-exist and any cause tending to dislodge a thrombosis is equally effective in forming an embolus. Thrombi are predisposed to by continued pressure on the abdominal and pelvic vessels, by chronic obliterative changes in the vascular system, and by local infection through the walls of the vessels. The exciting causes are a sudden change in posture, coughing, sneezing, and straining during defecation.

#### CONCLUSIONS.

We hear much to-day of prophylactic medicine, but little or nothing of preventive surgery or the complications arising from neglect of this subject. The public learns that a patient has been operated upon, and knowing nothing of the disease or circumstances is surprised at the unfortunate outcome. Many of the complications of abdominal surgery are preventable conditions, and if our results are to depend on a more thorough knowledge of their etiology, combined with a more rigid technic, it is just as important for the surgeon to avail himself of every opportunity to this end, in the lowering of mortality and increasing the permanency of cure, as it is for the physician to understand the underlying principles of preventive medicine.

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## Surgical Gleanings.

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**Treatment of Luxation of the Peroneal Tendons.**—Dr. R. Eden (*Münch. med. Wochenschr.*, No. 12, 1912) points out that the peroneal tendons are retained in position by double annular bands, which represent a reinforcement of the fascia, these being attached to the os calcis and astragalus. After luxation of the peronei muscles the chief attention should be directed to the restoration of these retinaculi. A number of methods have been suggested for this purpose. Lexer, with whose clinic the author is connected, has had excellent results from free tendon transplantation. After exposing the external malleolus and the peroneal tendons the peroneal groove was deepened and the malleolus drilled. Then the tendon of the palmaris longus taken from the same patient was used for the transplantation, as this muscle practically fulfills no function. This tendon was applied around the peronei, passed through the opening in the malleolus, and there fixed in position. Thus the peroneal tendons

were enveloped in a tendinous ring which prevented their gliding over the malleoli. At the close of operation the divided fascia was carefully sutured. The results were very satisfactory, the patient being able to take long walks three weeks after operation. It was found that the displaced tendons were held permanently in position by the new-formed tendon ring.

**Fracture of the Internal Malleolus.**—Dr. Wegner (*Münch. med. Wochenschr.*, No. 18, 1912) reports a case of fracture of the type first described by Bircher and termed by him fracture of the malleolus lateralis tibiae posterior. It would seem that these cases cannot be diagnosed without careful Roentgen examination. In Bircher's case a disc of bone was torn off from the posterior end of the tibia. The space between the tibia and the fragment was often very slight and only visible in the x-ray picture as a fracture line. Wegner's case had been diagnosed by another surgeon as a fracture of the leg at the lower third. When seen by him some time after the injury there was still present a swelling of the leg and foot, but no shortening nor displacement. The mobility of the ankle was impaired. The Roentgen picture revealed a small fragment torn from the malleolus as well as a spiral fracture of the fibula with distinct callus formation. The injury had resulted from a slip. While slight in character the after-effects are sometimes sufficient to render it worthy of consideration.

**Complete Displacements of the Lower Cervical Vertebrae.**—Dr. F. O. Quetsch (*Münch. med. Wochenschr.*, No. 18, 1912) describes five cases of total luxation of the lower cervical vertebrae which occurred among 100 cases of injuries of the spine not terminating fatally. In view of the sudden and marked narrowing of the spinal canal as the result of this injury and the danger of involvement of the important spinal centers in this region it is remarkable that luxations of the cervical vertebrae have been followed by relatively high percentage of recoveries. The adaptability of the cord, however, is very great, and contusion and laceration are not as marked in all parts as was formerly assumed. In three of the author's cases the paralytic phenomena were fairly severe, but later subsided. The degree of complete anterior luxation is no criterion of the amount of damage to the cord, although it bears a direct relation to the degree of movability of the head. The backward luxation gives the best prognosis functionally and causes the least disturbances in the movements of the head. Quetsch's cases show that unreduced total luxations in young and vigorous persons after compensatory changes have occurred make recovery with more or less complete restoration of their working capacity. Reduction is only possible in recent cases by means of extension apparatus, and is particularly advisable where the disturbances of the spinal cord are of serious character.

PUBLISHED

BY THE

**International Journal of Surgery Co.****FRANK C. LEWIS, M.D., Managing Editor.**

100 William St.—Woodbridge Building.

NEW YORK, N. Y., U. S. A.

To whom all communications intended for the Editor, original contributions, exchanges, books for review, as well as communications relating to the business of the Journal, should be addressed.

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**Editorial Department**

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**NEW YORK, JUNE 1912**

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**THE OPERATIVE TREATMENT OF  
SIMPLE FRACTURES.**

Since 1905, when Mr. Arbuthnot Lane described his operative method of treating simple fractures, this subject has attracted considerable attention. While surgeons in different parts of the world have employed this procedure, few have followed its originator so far as to adopt it as a routine measure, and for good and sufficient reasons. As compared with the older conservative plan of treatment the Lane method and its modifications have some serious disadvantages which should restrict their use to cases in which satisfactory adjustment and retention of the fragments cannot be secured by the former. To convert a closed fracture into an open one is more or less hazardous, for unless the most scrupulous asepsis be observed there is always risk of infection. As Jonas has pointed out, "in no other domain of surgery are errors in asepsis so often punished by failures." The surgeon must also be a master of the technic and be provided with trained assistants, and Roberts (*Pennsylvania Medical Journal*) makes the significant statement that the operation should be undertaken with great caution in the average American hospital because of the imperfect organization of many of these institutions. Moreover, as Eve (*Southern Medical Journal*) emphasizes, it is the exception rather than

the rule that patients will agree to the operative plan of treatment. There can be no question, however, that in cases in which proper reduction and retention cannot be effected operation is clearly indicated, as, for instance, in transverse fracture of the patella, joint fractures with mechanical interference with movement by the fragments, cases where important muscular attachments are torn off and cannot be approximated, where there is involvement of a nerve, or interposition of soft parts, or angular or axial deformity that cannot be overcome, especially in the lower limbs (Cathcart, *Edinb. Medical Journal*). Viewed from a practical standpoint we believe that Jonas is quite right in his contention that the greater number of fractures always have been and always will be treated by the general practitioner, and that his functional results are usually good and satisfactory to the patient, even though a skiagraph would show imperfect alignment and defective adjustment. Consequently the surgeon can never hope to attain an exclusive control of the management of fractures, and the open treatment can never become the universal one.

**THE PRACTICAL DIAGNOSIS AND CARE  
OF SIMPLE FRACTURE.**

Our text-books have so systematized the signs of simple fracture that the diagnosis appears ridiculously easy. We are told to pin our faith to crepitus, abnormal mobility, deformity, pain, and loss of function. We are taught that crepitus and abnormal mobility are positive signs of fracture, but we are not told that complete fracture without either of these signs is extremely common. We are left to believe that fracture without crepitus and without abnormal mobility is at least uncommon, if not impossible.

We are so impressed by the importance of crepitus that it is invariably the first sign we look for. When we are certain of its existence and its character, it is, of course, pathognomonic of fracture. It is usually dependent upon the amount of abnormal mobility.

Careful and orderly examination in a suspected fracture should be as much a routine procedure as it is in any other injury or disease. We should always *listen* to the history. If it were always reliable and accurate it would be of great value, for, knowing something of the character and direction of the force, we could estimate the extent of the injury. Although unfortunately the story is often inaccurate

rate, a *clear* account is of *great* value, particularly in Pott's or Colles' fracture, or in fracture of the neck of the femur.

While the patient is describing how the accident occurred, much can be gained by observation. To a practiced eye, the changes in the form and contour of the part are of great interest—in some instances pathognomonic. The patient's attitude is often characteristic. Even ecchymosis may be studied. Though it is but presumptive evidence of fracture, it is almost always present at *some* time, and its location is often of significance.

When we come to examine the injury, if we have not already made our diagnosis, we must make it now. All the positive signs of fracture are elicited here. The utility of mensuration is variable; it is dependent upon so many inaccuracies that it is never of absolute value. The bony points we measure from are not points at all, but are usually rounded prominences, which give us opportunity for personal error. The tape may run over unevenly placed limbs and fall upon swollen soft parts. Asymetry of the extremities is, in my opinion, extremely common. I have often found a half-inch difference in the normal individual. If the shortening is glaringly evident, the tape will convince us of it; if it is not, our measurements may help or hinder us.

If we can move one portion of the bone while the other is fixed, we are of course certain of fracture. But this is often impossible. It should be understood that this sign is not always available, and yet fracture may still exist. Partial fracture, impaction of the fragments, linear fracture, proximity to a joint, elasticity of the bone, as in the ribs or the fibula, shortness of the bone itself, its depth beneath the skin, or even sliding of the supra-osteal tissues, must all be taken into consideration. Any one of these factors, in the proper situation, may so militate against our efforts that we may be unable to detect mobility. We should never use violent attempts to produce motion at a fracture-point. Gentle efforts will not only tell us all we wish to know, but vigorous manipulation will often defeat our object by locking the fragments or plunging them into the soft parts.

While moving the fragments we may get crepitus; but this sign owes its existence to every one of the factors concerned in abnormal mobility. These two signs are usually interdependent, but separation of the fragments, the age of the fracture, or blocking by the soft parts may be responsible for the existence of one without the other. Much harm can be done by attempts to elicit crepitus; a jagged fracture end may cause enough injury to the soft parts,

with its resulting cicatricial contraction, to account for much overriding, bowing, or loss of function. This condition is often seen when open operation is done for ununited fracture.

The existence or non-existence of fracture can be practically determined by careful inquiry into the presence of pain. This is by far the most certain sign of fracture in cases difficult of diagnosis, and is at all times available.

The inherent pain of fracture is greater or less, depending upon the individual, upon associated injuries, muscular spasm, and spontaneous motion in the fragments. It may be so characteristic as to convince us of fracture somewhere, but it is very often a negligible quantity. We then search for pain systematically and with great care:

First.—By pressure upward upon the long axis of the bone, the presence of Colles' fracture or fracture of the shaft of the tibia or femur may be discovered in this manner. It is often the only way we can detect fracture of the surgical neck of the humerus.

Second.—By availing ourselves of our knowledge of muscular attachments we can often produce localized pain. Evidence of fracture of the internal condyle of the humerus may be discovered by asking the patient to flex his wrist; thus causing the flexor muscles to sharply detach the fragments.

Third.—By eliciting pain upon linear pressure. Before searching for this sign the part should be so supported that the muscles are at rest, thus separating the pressure pain from traction or motion pain. Pott's fracture shows us very characteristic linear pain, as does fracture of the radius, ulna or fibula.

The diagnostic value of the x-rays is variable and vastly misunderstood. In fractures easy of diagnosis the rays are unnecessary, and in difficult cases they are of value only in the hands of an expert radiographer. Even then, the skiagraph may reveal fracture where there is *none*, or fail to show it where there is *one*. Not every line across a bone is evidence of fracture. The distance of the tube, the inclination of the rays, the density and position of the bone, and the interpretation of the operator must all be considered. In children particularly does the variable density of the bone give rise to error. We should not let it interfere with a definite clinical opinion, for often a skiagraph will show great deformity where the functional result is all that could be desired.

The practical care of simple fracture is so long a story that it can be but touched upon in a paper of this length.

In the first place, common sense and, at least, some mechanical ability are indispensable. While reduction should be our first thought for local treatment, it should be remembered that it is often unnecessary and occasionally inadvisable. Although set rules for reduction are possible in some fractures, as in Pott's or Colles', we are more often guided by our sense of sight and of touch. Reduction is vastly simplified if our finger experiences can give us a mental picture of the position of the fragments.

When we are reasonably certain that the fragments are in as close apposition as is possible, our next care is efficient immobilization. The application of a retentive dressing can never be done by rule of thumb. Apparatus never heals by virtue of its name or reputation. It must do the work in each individual instance, or it is useless.

There is to-day a gradual drift toward open operation in fracture treatment. Operative interference has long been practiced for non-union or faulty union, but advanced surgeons tell us that mechanical fixation of the fragments should be a routine rule of practice. Fortunately, accurate adjustment and perfect alignment of the fragments are not necessary to success in the vast majority of cases. I have seen excellent functional results in fractures put up by laymen at sea. There are a few definite reasons for operating upon recent fractures, but should our operative eagerness and perfected technic induce us to operate widely, when the percentage of failure in all fractures is perhaps two per cent. or less?

Let us remember that there is a difference between delayed union and non-union—that, after long delay, fibrous may be converted into bony union. Let us remember that absolute failure of union is rare, that delayed union is often of constitutional origin, and *then* we will operate only in the presence of a definite local cause. At very few operations for non-union do we find the classical picture of muscle or fascia between the fragments; more often do we encounter nothing at all but the fracture and its granulation tissue.

Sutures and mechanical contrivances without number have been devised to hold the fragments; their very multiplicity speaks ill for their usefulness. Pathology teaches us that any foreign body, no matter what its nature, sets up, for some distance around it, a rarefying osteitis which defeats the purpose of the surgeon. Whether wire or nails, or pins or plates, a metallic body buried in the tissues will break through if given time enough. I have removed silver wire from an olecranon process which had been sutured years (seventeen) before.

Since none of these contrivances are adapted to hold the fracture fast without a retentive dressing, and since *absorbable* sutures are undoubtedly often broken in the application of that dressing, let us confine our efforts, when we *must* operate, to clearing the ends of the fragments, squaring them off, if necessary, and then have them maintained in position by an assistant till the tissue suturing is finished and the immobilization completed.

When firm union has occurred in one way or another, the end-results may prove good without further watchfulness on our part. Restoration of function is, however, very often the most difficult and the least appreciated part of our work.

CHARLES A. GORDON, M.D.

### HINTS ON FRACTURES.

By JOSEPH E. FULD, M.D., New York.

It is necessary to watch fractures of the ribs carefully for a couple of days to note the onset of possible pulmonary complications. Localized pneumonitis sometimes occurs.

In strapping the chest for fractured ribs, the straps should pass well beyond the median line. They should be applied during a full expiration. One or two straps passed over the shoulder help much to secure immobilization.

A hematoma of the scalp may simulate a depressed fracture of the skull. If the finger is firmly pressed upon the center of the swelling, the smooth hard skull can be felt, while in fracture the center is soft.

Systematic examination of the whole body should be made in every accident case. Thus I have seen a Colles' fracture which had been treated elsewhere for three weeks for something else. One patient, a child, was brought to me with an unrecognized malunited fracture of the clavicle. This class of cases makes good material for mal-practice suits.

It is to be remembered that fracture of metatarsal bones may be caused by slight injuries. Thus, the base of fifth metatarsal may be fractured by a twist of the foot while walking or dancing.

The value of the x-ray as a means of diagnosis cannot be overestimated. It is surprising how much information can be obtained from a skiagraph, but it must be remembered that the bones are shown only as shadows and are subject to distortions, and the condition may be misinterpreted unless the examination is made by one experienced in radiography.

## Department of Railway Surgery

### OFFICIAL ORGAN

THE ASSOCIATION OF SURGEONS OF THE SOUTHERN RAILWAY.  
ASSOCIATION OF SURGEONS OF THE PENNSYLVANIA LINES.  
ASSOCIATION OF SURGEONS OF THE SEABOARD AIR LINE RAILWAY.

### THE PENNSYLVANIA RAILWAY SURGEONS' FIFTH ANNUAL CONVENTION.

The Railway Surgeons of the Pennsylvania lines east of Pittsburg, held their fifth annual meeting at the Marlborough-Blenheim Hotel, Atlantic City, May 31st and June 1st, 1912. The sessions were held in one of the assembly rooms of the hotel, and while the attendance was not as large as was expected, it was a matter of great satisfaction to the officers and various committees in charge, that they were able to present such an excellent program, comprising some very valuable and instructive papers. The wide variety of surgical topics and the discussions to which they gave rise, of which the following is a complete list, showed the progressive character of this association:

Traumatic Shock, Dr. Marshall Clinton, Buffalo, N. Y. Surgical Shock, Dr. Joseph M. Wells, Trenton, N. J. Infection and Immunity, Dr. Geo. T. Müller, Philadelphia, Pa. Little vs. Much Technique and Apparatus in Bone Surgery, Dr. D. W. Kingsbury, Nanticoke, Pa. Address, Dr. J. Wm. White, Chief Surgeon P. R. R., Philadelphia, Pa. The Surgical Importance of Early Diagnosis, Dr. Walter Lathrop, Hazleton, Pa. The Relation of the Railroad Surgeons to the Legal Department, Stacey B. Lloyd, Esq., Asst. Gen. Counsel P. R. R., Philadelphia, Pa. Treatment of Old Ununited and Deforming Fractures, Dr. S. L. McCurdy, Pittsburg, Pa. Depressed Fracture of the Malar Bone, Dr. H. T. A. Lemon, Washington, D. C. Some Newer Ideas in Wound Healing, Dr. H. Edwin Lewis, New York City. Safety Devices and Resulting Benefits, Robert H. Newbern, Esq., Supt. Insurance Department, P. R. R., Philadelphia, Pa. Address on Fractures, Dr. John B. Walker, New York City. Eye Injuries, Dr. S. L. Olsho, Philadelphia, Pa. Reduction of Cancer Mortality, Dr. Jonathan M. Wainwright, Chief Surgeon, D. & W. R. R., Scranton, Pa. Traumatic Shock and the Employment of Blood Pressure Estimation in Its Prevention and Treatment, Dr. Jos. C. Bloodgood, Baltimore, Md. Address, Dr. John B. Murphy, Chicago, Ill.

Saturday evening the surgeons and their ladies and guests partook of a most delightful banquet in one of the private rooms of the hotel. Dr. H. T. A.

Lemon, of Washington, D. C., proved a most acceptable toastmaster, while the witty responses of many of the surgeons present added much to the enjoyment of the occasion.

Dr. L. T. Bremerman, of Downingtown, Pa., presided in a very pleasing and efficient manner. Much credit is due Dr. Spencer M. Free, of Dubois, Pa., Chairman of the Scientific Program Committee, to the Secretary, Dr. A. W. Colcord, of Clairton, Pa., and the Chairman of the Committee on Arrangement, Dr. Francis W. Bennett, of Atlantic City, N. J., for their untiring and able efforts in making this meeting a decided success.

The following officers were selected for the ensuing year:

President, Dr. H. T. A. Lemon, of Washington, D. C. First Vice-president, Dr. J. W. Barr, of Nanticoke, Pa. Second Vice-president, Dr. A. W. Phelps, of East Aurora, New York. Secretary Dr. A. W. Colcord, of Clairton, Pa. Treasurer, Dr. J. C. Egbert, of Wayne, Pa. Dr. L. T. Bremerman, of Downingtown, Pa., was elected a member of the Executive Committee.

The next meeting place was not decided upon, the choice of time and place being left in the hands of the Executive Committee.

### THE ANNUAL MEETING OF THE SURGEONS OF THE SOUTHERN RAILWAY.

The seventeenth annual meeting of the Association of Surgeons of the Southern Railway was held, June 11th and 12th, in the spacious ballroom of the New Willard Hotel, Washington, D. C. The very large attendance was a matter of much gratification to the officers, the arrangement committee and the surgeons of this great system.

This meeting, as all previous ones held by this Association, was most interesting and successful in every particular. A splendid program comprising many instructive and practical papers on a wide range of subjects, including a symposium on injuries to the elbow, occupied much of the time of the scientific sessions. These papers, together with the numerous and thorough discussions which they aroused, showed how much interest was manifested by the members in these meetings, and also proved that they were eager to secure all possible benefit from them.

The President, Dr. J. H. Mitchell, of Mt. Vernon, Ill., most capably and satisfactorily presided over the meetings. Many of the surgeons brought their wives and families with them to enjoy the outing and the many points of interest to be found in



the Capitol City. An automobile sight-seeing trip for the ladies and children was one of the entertainment features.

Among the special papers were addresses by President W. W. Finley, of the Southern Railway, Surgeon C. P. Wertenbaker of the United States Marine Hospital Service, of Norfolk, Va., Dr. Tom A. Williams, of Washington, D. C., Col. L. E. Jeffries, of the Law Department of the Southern Railway, and several others, on timely and important subjects. President Finley gave a most interesting discourse on the many problems that are confronting the railway companies of to-day. He declared that all disputes between labor organizations and the railroads should be settled by compulsory arbitration. He thought the time had already arrived for the adoption of a well devised system, "not only because the public interest in the avoidance of strikes and the interruption of transportation demanded it, but because we are face to face with a situation which may bring the relation of the wages of railway employees and charges for transportation service, before the government tribunals."

Dr. J. U. Ray, as usual, demonstrated his exceptional ability in his offices as secretary and treasurer, and contributed not a little to the successful outcome and management of the many details incident to such a meeting.

The following officers were elected for the ensuing year:

President, Dr. H. W. Blair, Sheffield, Ala. First Vice-president, Dr. M. W. Stowe, Jessup, Ga. Second Vice-president, Dr. M. W. O'Brien, Alexandria, Va. Third Vice-president, Dr. J. E. W. Haile, Rockville, S. C. Fourth Vice-president, Dr. J. H. Hamilton, Union, S. C. Member of Executive Committee, Dr. R. L. Payne, Norfolk, Va. Secretary and treasurer, Dr. J. U. Ray, Woodstock, Ala.

It was decided to hold the next annual meeting at Norfolk, Va., in June, 1913, the date to be announced later.

## Surgical Gleanings.

### Implantation of Ivory as a Substitute for Bone.

—Dr. Koenig, in a paper read before the German Society for Surgery, April, 1912 (*Deut. med. Wochens.*, No. 17, 1912), expressed a preference for ivory over living or dead bone for transplantation. He described the case of a woman sixty-nine years old, in which a year ago he had resected almost the entire left half of the lower jaw for a cystic tumor. A splint of ivory was employed to cover the defect, one end being inserted into the medullary cavity of the remaining half of the max-

illa and the other into the glenoid cavity, and the soft parts were accurately sutured. Complete union took place with excellent functional results, the patient being able to widely open the mouth. No fistulæ or irritation developed. This constitutes the third case successfully treated by this method. In the case of a boy seventeen years old Koenig removed almost the entire humerus for a sarcoma and introduced an ivory rod into the medullary cavity of the remaining lower portion. Although recurrence took place, it was found possible to retain the ivory substitute for two months.

### Nail Extension in the Treatment of Fractures.

—Dr. Süssengut (*Berlin. klin. Wochens.*, No. 13, 1912) obtained ideal results from this method in 16 of 18 cases, especially as regards avoidance of shortening and lateral displacements. In view of the possibility of resorting to massage and passive movement under this treatment, the functional results were very satisfactory. The chief disadvantages are pain, risk of infection, and irritation about the place of insertion of the nails. This method is not intended to replace the customary ones, but to be employed in appropriate cases, such as complicated fractures with extensive injuries of the soft parts. It should be practiced only in hospitals.

**Surgical Treatment of Poliomyelitis.**—In an article read before the German Society for Orthopedic Surgery, April, 1912, Professor Lange (*Münch. med. Wochens.*, No. 17, 1912) advises the application of a plaster-of-Paris bandage during the first stage, which is often followed by subsidence of pain. To promote regeneration of the paralyzed muscles electricity and massage, as well as heat, were found useful, while for the prevention of contractures Lange prefers a light celluloid gauze splint. If contractures have resulted they are removed by tenotomy and redressement. Later tendon transplantation is usually necessary, but nerve transplantation is not indicated in this disease. In general, tendon transplantation is not to be undertaken before the fourth year. If possible, the entire muscle is transplanted, the periosteal method being most advantageous because securing better fixation. Early resort to movements is important, except in cases where fixation is necessary. Professor Vulpius, who also reported his experiences at the same meeting, stated that the minimum time at which tendon transplantation can be performed is the first year. In the shoulder-joint more is to be expected from arthrodesis than from tendon transplantation, while conditions are reversed in the elbow-joint. Plastic work is desirable in the hip-joint, and at the knee transplantation gives good results. Though the social state of the patient should be the deciding factor in considering the mode of operation on the foot—whether tendon transplantation or arthrodesis—the latter is often preferable because requiring less time. Unlike Lange, Vulpius considers the periosteal method the exceptional one.

# Monthly Index of Surgery and Gynecology

- Acute Abdominal Emergencies, Some (Canad. M. A. Jour., May, 1912). H. A. Bruce, Toronto.
- Acute Intestinal Obstruction with Impairment of Intestinal Vitality, Suggestions in Treatment of (N. Y. Med. Jour., May 4, 1912). Van B. Knott, Sioux City, Ia.
- Apopophysitis of the Os Calcis (N. Y. Med. Jour., May 18, 1912). J. W. Sever, Boston.
- Appendicitis as a Complication of Pregnancy and the Puerperium (Col. Med., May, 1912). H. McClannahan, Colorado Springs.
- Appendicitis in Childhood, Management of (Am. Jour. Obst., May, 1912). W. F. Campbell, Brooklyn, N. Y.
- Arthrodesis of Some of the Smaller Joints in the Treatment of Paralysis and Acquired Deformities (Jour. A. M. A., May 11, 1912). R. E. Soule, New York.
- Benign Cyst of the Long Bones (Col. Med., May, 1912). H. W. Wilcox, Denver.
- Benign Growths of the Larynx, the Operative Treatment of (South. Med. Jour., May, 1912). R. McKinney, Memphis.
- Bismuth Paste, Experiments with (Jour. A. M. A., May 4, 1912). F. McK. Bell, Ottawa, Can.
- Bismuth Paste, the Passing of (Med. Rec., May 18, 1912). W. Blanchard, Chicago.
- Cancer of the Breast, Surgery of (N. Y. Med. Jour., Apr. 27, 1912). E. S. Judd, Rochester, Minn.
- Cancer of the Lip and Tongue, Special Factors Concerning Surgery of (Calif. S. Jour. Med., May, 1912). H. A. L. Ryfkogel, San Francisco.
- Cholecystostomy versus Cholecystectomy (Am. Jour. Surg., May, 1912). L. Frank, Louisville.
- Cholelithiasis (Canad. Pract., May, 1912). W. J. Macdonald, St. Catharines, Ont.
- Congenital Hypertrophic Pyloric Stenosis, the Surgical Treatment of (South. Med. Jour., May, 1912). G. E. Gavin, Mobile.
- Congenital Malposition of the Gallbladder (Lancet, Apr. 6, 1912). A. J. Walton, London.
- Cystoscope in Diagnosis, the Use of (Northw. Med., May, 1912). O. S. Fowler, Denver.
- Diagnostic Aids in the Surgery of the Renal Pelvis and Ureter, with Special Reference to Pyelography (Lanc.-Clin., May 18, 1912). W. F. Braasch, Rochester, Minn.
- Differential Diagnosis of Pancreatic Affections and Gallstones (N. Y. Med. Jour., May 11, 1912). J. F. Erdmann, New York.
- End Results of Operations for Cancer of the Tongue (Brit. Med. Jour., Apr. 20, 1912). A. R. Short, Bristol.
- Enterostomy Incident to Operations for Intestinal Obstruction, the Choice of Technic in (Surg., Gyn. and Obst., May, 1912). J. P. Lord, Omaha.
- Epilepsy, Surgery in (South. Med. Jour., May, 1912). W. A. Bryan, Richmond.
- Estimation of Vital Resistance of Patient with Reference to Possibility of Recovery (An. of Surg., May, 1912). J. C. Bloodgood, Baltimore.
- Exaggerated Lordosis in the Adult (N. Y. Med. Jour., Apr. 27, 1912). J. J. Nutt, New York.
- Exploratory Laparotomy (South. Med. Jour., May, 1912). C. W. Allen, New Orleans.
- Fibrous Atrophy of the Parotid Gland, with Especial Reference to the Treatment of Salivary Fistula (Surg., Gyn. and Obst., May, 1912). D. Tait, San Francisco.
- Fractures, Recent, Operative Treatment of (Jour. M. A. Ga., May, 1912). F. K. Boland, Atlanta.
- Fractures, Treatment of (Jour. A. M. A., May 4, 1912). M. L. Harris, Chicago.
- Fractures, Treatment of, by the Open Method, with Report of Eight Cases (Med. Herald, May, 1912). A. Poorman, Kansas City.
- Gallbladder Infections and Gallstones from a Study of 100 Cases (Jour. Ind. S. M. A., May 15, 1912). M. A. Austin, Anderson, Ind.
- Gonorrheal Arthritis (Bost. M. and S. Jour., May 16, 1912). J. W. Sever, Boston.
- Female Perineum from a General Surgeon's Point of View (Jour. A. M. A., May 18, 1912). R. T. Morris, New York.
- Harelip, Artistic and Mathematically Accurate Method of Repairing the Defect in Cases of (Surg., Gyn. and Obst., May, 1912). J. E. Thompson, Galveston.
- Hematuria of Nephritis and Renal Papillitis from a Surgical Standpoint (Am. Jour. Urol., May, 1912). B. S. Barringer, New York.
- Hysterectomy, Choice of Technic in (Calif. S. Jour. Med., May, 1912). J. H. Barbat, San Francisco.
- Influence of Stricture of the Urethra on the Development of Hypertrophic Changes in the Prostate (Lanc.-Clin., Apr. 27, 1912). H. Cabot, G. G. Smith, Boston.
- Intestinal Obstruction Due to Gallstones (An. of Surg., May, 1912). F. Martin, Baltimore.
- Intestinal Stasis, Surgical Treatment of (Interst. Med. Jour., May, 1912). J. Y. Brown, St. Louis.
- Ischemic Paralysis and Contracture of Volkmann; Further Account of a Previously Reported Case of (Jour. A. M. A., May 11, 1912). C. A. Powers, Denver.
- Juxta-Epiphyseal Fracture of the Upper End of the Humerus (Med. Rec., May 4, 1912). F. H. Albee, New York.
- Knee-Joint Tuberculosis in the Adult (Denv. Med. Times, May, 1912). L. W. Ely, Denver.
- Lateral Curvature of the Spine, Correction of (N. Y. Med. Jour., Apr. 27, 1912). E. G. Abbott, Portland, Me. Also D. D. Ashley, New York.
- Lateral Curvature of the Spine (Scoliosis). Analysis of 9,000 Consecutive Cases (Brit. Med. Jour., Apr. 20, 1912). P. B. Roth, London.
- "Le Rheumatism Tuberculeux," Poncet (An. of Surg., May, 1912). H. H. M. Lyle, New York.
- Ligature Material and After-Treatment of Surgical Cases (South. Med. Jour., May, 1912). H. T. Inge, Mobile.
- Local Anesthesia in Hernia Operations (South. Med. Jour., May, 1912). W. T. Henderson, Mobile.
- Local Anesthesia in the Operative Treatment of Anorectal Diseases (Northw. Med., May, 1912). E. H. Brown, Portland, Ore.
- Myoma Heart (Am. Jour. Surg., May, 1912). C. C. Barrows, New York.
- Nephroptosis, Symptoms and Treatment of (Indianap. Med. Jour., May, 1912). T. C. Kennedy, Indianapolis.
- New Decompression Operation for the Brain (An. of Surg., May, 1912). W. H. Hudson, Atlanta.
- Non-Tuberculous Joint Disease, Local Surgical Procedures in (Ill. Med. Jour., May, 1912). E. H. Ochsenr, Chicago.
- Obstruction of the Bladder Neck Other than Senile (Am. Jour. Dermat., May, 1912). J. MacMunn, London.
- Obstructive Prostatitis (Lanc.-Clin., May 18, 1912). G. F. McKim, Cincinnati.
- Old Intracapsular Fracture of the Hip-joint, Treatment of (N. Orl. M. and S. Jour., May, 1912). E. S. Hatch, New Orleans.
- Orthopedic Defects and Rickets (Bost. M. and S. Jour., Apr. 25, 1912). J. E. Goldthwait, Boston.
- Pancreas, Surgical Diseases of (Surg., Gyn. and Obst., May, 1912). M. H. Richardson, Boston.
- Penetrating Wounds of the Abdomen (Ohio S. Med. Jour., May, 1912). F. Fee, Cincinnati.
- Perforating Duodenal Ulcer, with Report of Case (Tex. S. Jour. Med., May, 1912). A. L. Folsom, Dallas.
- Peritonitis (South. Med. Jour., May, 1912). R. A. Barr, Nashville.
- Periurethral Complications of Stricture (Jour. A. M. A., Apr. 27, 1912). M. Silverberg, San Francisco.
- Persistent Pain of Organic Origin in the Lower Part of the Body, the Treatment of, by Division of the Anterolateral Column of the Spinal Cord (Jour. A. M. A., May 18, 1912). W. G. Spiller, E. Martin, Phila.
- Pharyngeal Insufflation, a Simple Method of Artificial Respiration (Jour. A. M. A., May 11, 1912). S. J. Meltzer, New York.
- Possible Dangers of the Vertical Rectus Incision (Jour. A. M. A., May, 1912). M. I. Porter, Fort Wayne, Ind.
- Postoperative Anuria, Prophylaxis and Treatment of (Am. Jour. Urol., May, 1912). E. O. Smith, Cincinnati.
- Pott's Disease of the Spine, a Further Report of an Operation for (An. of Surg., May, 1912). R. A. Hibbs, New York.
- Precise Relationship of Cystocele, Prolapse and Rectocele, and the Operations for their Relief (Brit. Med. Jour., Apr. 13, 1912). W. E. Fothergill, Manchester.
- Preservation and Restoration of Tendon Function (Tex. S. Jour. Med., May, 1912). W. L. Brown, El Paso, Tex.
- Prolapsus of the Uterus with Attendant Cystocele and Rectocele, Treatment of (N. Y. Med. Jour., May 18, 1912). J. R. Goffe, New York.
- Resection of the Posterior Spinal Nerve Roots for Spastic Paralysis (Northw. Med., May, 1912). E. Viko, Salt Lake City.
- Retroperitoneal Tumors and Intraligamentary Pregnancy (Buf. Med. Jour., May, 1912). J. M. Lee, Rochester.
- Retroversion of the Uterus Treated by Gilliam's Round Ligament Ventrisuspension. With an Analysis of 100 Consecutive Cases (Brit. Med. Jour., Apr. 18, 1912). F. Ivens, Liverpool.
- Rotary Lateral Curvature of the Spine; Report of Results Obtained (N. Y. Med. Jour., Apr. 27, 1912). C. Ogilvy, New York.
- Rupture of the Kidney in Children (Am. Jour. Med. Sc., May, 1912). C. L. Gibson, New York.
- Rupture of a Pyosalpinx as a Cause of Acute Diffuse Purulent Peritonitis (Surg., Gyn. and Obst., May, 1912). W. M. Brickner, New York.
- Secondary Parotitis Following Operations for Appendicitis, with a Report of Two Cases (Surg., Gyn. and Obst., May, 1912). J. Frank, Chicago.
- Senile Hypertrophy of the Prostate Gland, Pathology, Related Symptoms and Indications for Treatment (Am. Jour. Dermat., May, 1912). W. Griess, Cincinnati.
- Shock, the Mechanism and Treatment of (Brit. Med. Jour., Apr. 27, 1912). H. T. Gray, London, L. Parsons, Birmingham.
- Skin Cancers About the Face, the Treatment of (Med. Sent., May, 1912). P. J. Payne, Portland, Ore.
- Skin Grafting, Methods of (West. Med. Rev., May, 1912). F. B. Hollenbeck, Lincoln, Neb.
- Spinal Curvature, Treatment of (Calif. S. Jour. Med., May, 1912). J. T. Watkins, San Francisco.
- Surgery of the Biliary Passages, Some Observations upon (Surg., Gyn. and Obst., May, 1912). G. E. Brewer, New York.
- Surgical Anesthesia (N. Y. Med. Jour., May 11, 1912). R. H. Ferguson, East Orange, N. J.
- Surgical Diseases of the Upper Abdomen, Consideration of (Jour. M. S. N. J., May, 1912). L. J. Hammond, Phila.
- Suture of Bullet Wound of the Lung, with a New Method of Closing Pleural Defects (Lanc.-Clin., May 11, 1912). J. Ransohoff, Cincinnati.
- Tendon Transplantation and Silk Inserts (Jour. A. M. A., May 11, 1912). J. W. Sever, Boston.
- Thanatology. A Questionnaire and a Plea for a Neglected Study (Jour. A. M. A., Apr. 27, 1912). R. Park, Buffalo.
- Torsion of the Kidney; Report of Two Cases with Operation (Am. Jour. Dermat., May, 1912). H. Lilienthal, New York.
- Uterine Hemorrhage, Notes on, with Special Reference to the Abuse of the Curette (Lancet, Apr. 27, 1912). B. Whitehouse, Birmingham.
- Uterine Prolapse, the Treatment of (St. Paul. Med. Jour., May, 1912). W. A. Dennis, St. Paul.
- Vaginal Cesarean Section and its Limitations, Particularly in Eclampsia (Am. Jour. Obst., May, 1912). G. W. Kosmak, New York.
- Vaginal Hysterectomy for Uterine Fibromata, Series of One Hundred Cases of (Bost. M. and S. Jour., May 2, 1912). C. G. Cumston, Boston.
- Vaginal Hysterotomy in the Late Months of Pregnancy (Am. Jour. Obst., May, 1912). R. W. Lobenstine, New York.
- Volvulus of the Spermatoc Cord (Lancet, Apr. 20, 1912). A. A. McConnell, Dublin.
- Wiring of Otherwise Inoperable Aneurisms (An. of Surg., May, 1912). J. M. T. Finney, Baltimore.

# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

JULY, 1912

No. 7

## Original Articles

### ACUTE LYMPHANGITIS.

WM. PEARCE COUES, M.D., Boston.

*Surgeon to the Boston Dispensary, Instructor in Clinical Surgery, Tufts College Medical School.*

The diagnosis and treatment of this affection, many of the cases of which seem on the border line between dermatology and surgery, will always have a keen interest for the surgeon, dermatologist and general practitioner.

The skin has been aptly likened to a lymphatic sponge by Darier. When we consider the arrangement of its lymph spaces and the frequent traumatisms that the extremities are subject to, the wonder is that acute lymphangitis does not follow oftener than it does. Most of the authoritative books give but a cursory description of the process and likewise of its treatment.

*Anatomical Considerations.* If we consider briefly the anatomy of the lymphatic system before taking up the pathology of lymphangitis, we find that the beginning of the system is in shallow channels in the derma called lymph spaces.

According to Peirsol,<sup>1</sup> the lymph capillaries are entirely separate from the lymph spaces, arising from a capillary net work, the whole system being, in fact, a closed one except for its communicating with the subclavian vein.

The lymphatic vessels contain a clear fluid, the lymph, in which are suspended the lymph corpuscles or lymphocytes. The lymphatic vessels resemble veins much more closely than arteries, their walls being thinner and having only a single layer of endothelial cells. In the skin there are two layers of lymphatics, both being confined to the true skin.

*Pathology.* In the acute form of lymphangitis of the skin a previous traumatism is almost always present. Sometimes it may be so slight as to be unnoticed. It may have entirely healed. In some few cases no traumatism or minute septic focus can

be demonstrated by the most searching examination. Undoubtedly, infection has taken place in these cases by direct absorption through a hair follicle, or directly into a lymph space, the original puncture leaving no more trace than does the sting of the mosquito.

It is important clinically to differentiate: (1) acute reticular lymphangitis, inflammation of the reticular or mesh lymphatics, and (2) acute tubular lymphangitis, inflammation of the large tubular trunks. We must further decide whether the lymphangitis is (a) primary, or (b) secondary to some acute suppurative process more or less extensive.

I have seen a number of the cases of the first class, i. e., where absolutely no inflammatory or suppurative trouble was present and no infecting atrium demonstrated.

According to Coplin,<sup>2</sup> the affection is commonly suppurative in character, as it is usually due to some pus-producing organism. This is not in accord with my clinical experience. Coplin distinguishes forms where an inflammatory process is in the cellular tissues or passes beyond, inwards through to the true lymphatic vessel. He explains the broad lymphatic streak, broader than the vessel itself, by the accompanying peri-lymphangitis, dilatation of bloodvessels, and edema.

Microscopic examination of one of these inflamed lymphatic vessels demonstrates many leucocytes, cocci, more or less abundant, and swollen epithelial cells; vessel thrombosis may or may not be present.

Streptococci have been the organisms most commonly associated with lymphangitis. The pathologic process varies in intensity naturally with the severity of the infection. It may be so severe as to overwhelm the individual and destroy life with great rapidity. In other cases the infection may be mild and promptly yield to proper treatment. It is interesting, especially with students, to find the primary infective site when present, make a smear from this, and demonstrate streptococci in the pus.

*Reticular Lymphangitis.* In this condition there is present a flat, reddened, painful cutaneous area of rather sudden appearance, slightly edematous, not glazed or shiny, with or without an infecting lesion demonstrated, often merging into (2) the *tubular variety*, reddened streaks running toward the trunk from the extremities, more or less indurated and cord-like, associated with more or less edema and swelling, tenderness and pain of the extremity or other part affected.

*Diagnosis.* Most important is it for the surgeon to determine definitely whether the lymphangitis is "pure" or secondary to and attended by suppurative processes, deep or superficial. To my mind this is one of the most difficult points to settle. The "tactus eruditus" with the history will mean much in coming to a correct conclusion.

When one is confronted with a reddened, matted, indurated area, occupying one-half the posterior surface of the thigh, from the knee up, with lymphangitis streaks running up from it, it is difficult to tell whether pus is present or not. The leucocyte count may help. The temperature is not of much value. It will be high at the beginning of the lymphangitis very likely. The absence of fever does not mean absence of pus, localized from a more diffuse inflammation. As a rule, the matting in lymphangitis gives rise to a different feel than that of indurated areas over deep pus, at least to the educated touch. It seems more in the skin; red areas appear and disappear, it may be in a few hours' time. There is an obscure sense of fluctuation in these areas, due perhaps to serum, which is very confusing. When in doubt incise into the seemingly fluctuating point, but *never* carry the incisions above the line of infection.

*Treatment.* As a rule, in the general run of cases no surgical trouble yields more promptly to proper treatment than acute lymphangitis; this of course means cases of pure lymphangitis without complications. "The endocardium or pleura may be the seat of metastasis from lymphangectatic foci, and the infection may become general from phlebitis or peri-phlebitis." Keene.<sup>3</sup>

Rest, physiological rest to the body and to the part affected is the *sine qua non* of treatment. Scrupulous disinfection of any focus of infection found must be made. Any suppurative areas must be opened. It is absolutely important in incising these to keep within the limits of the cavity and not open up lymph spaces proximal to the inflammatory process. Other than this, incisions are positively contraindicated. Each case of lymphangitis of the extremities should be treated as if it was a

fracture and the extremity supported by proper splints in the same manner.

Thus rest, absolute, will help to localize the infection, hot compresses to increase and improve the circulation, and together assist nature in throwing off the infection and limiting the spreading and multiplication of cocci, the usual cause of the trouble.

The following are illustrative cases:

*Acute Recurring Lymphangitis of the Foot and Leg.* This case is of interest from the fact that the identical process occurred three times in the same place at widely separate intervals, cocci probably lying dormant in the lymph spaces or vessels till some traumatism, pressure of a boot, blow, or other cause, started up the infection again.

A well developed and nourished young man, with no venereal history, was seen in December, 1908. There was no rheumatic history, no history of traumatism to the foot, which was the seat of trouble. In the afternoon examination showed a diffuse patch of redness as large as half the palm, which had appeared rather suddenly. It was painful to pressure, the toes were slightly swollen; there was no septic lesion or wound of any kind discovered on the foot; there was no fluctuation. The temperature was 97.8, pulse 80. The ankle was hot and swollen. Flexion and extension of the foot were slightly painful. The throat was slightly reddened. The foot was immobilized as well as possible and a large hot gauze dressing applied. At 6 p. m. there was a sudden chill; then the patient felt hot and uncomfortable. The temperature was 102, the pulse 100. The patient's looks had changed. His face was haggard and he had the appearance of an acutely sick man. The foot was very tender, the tenderness not absolutely localized. The inguinal glands were enlarged and tender. The dorsum of the foot was exquisitely tender to pressure over a reddened area, size as described before, except that it was more oval and extended upward. The patient was sent to the hospital. Here a tiny abrasion was found between the toes, but it did not seem to me, or to the surgeon who saw the case with me, that this was the cause of the trouble. The foot and leg were enveloped in hot moist gauze, wrung out in epsom salt solution, and immobilized in a pillow splint. Next day a note was made that the foot was less tender to the touch and the glands less painful also. There was very slight redness over the internal malleolus and little toe (lymphangitis areas); slightly more tenderness sharply localized on the dorsum of the foot; induration and cord-like lymphatics at this place. The reddish area over the internal malleolus and little toe increased, and

a red streak appeared directly across the sole of the foot. In one week subsidence of the symptoms took place and patient left for his home with a slight cord-like lymphatic still persisting, but practically well. Uneventful recovery.

Nine months after this the patient had a precisely similar attack, and again some months afterward a third one. This time the lymphangitis spread well up over the thigh, and he was sicker than at any other time. Perfect health at the present time, months after the third attack.

*Secondary Lymphangitis.* Pyhaubert<sup>4</sup> reports the following interesting case of secondary lymphangitis in a boy treated with success by a fixation abscess.

The patient, fourteen years of age, entered the hospital. He had a phlegmon of the hand of three months' duration and the x-ray showed that there was an osteitis of the fourth right metacarpal bone. After removal of this bone and of the corresponding finger healing was rapid, and just when it seemed complete the patient was suddenly seized with vomiting and headache and a temperature reaching 40 degrees C. the second day. At the same time the hand grew very red and rapidly edematous, and the fingers and the wrist presented an aspect of extreme elephantiasis. Under the influence of antiseptic baths continued day and night the temperature gradually came down, but the local condition had not changed fifteen days after its beginning, except for the appearance of a tubular lymphangitis very well marked up to the region of the axilla. On the fifteenth day Pyhaubert made a fixation abscess with essence of turpentine, in the first interosseous space on the dorsal aspect, subcutaneously. There was elevation of temperature of one degree; a large amount of pus was found at the site of injection. Incision on the third day. Two days afterwards the hand and forearm had returned to their normal size. The tubular lymphangitis of the arm had disappeared.

*Gangrenous Recurrent Sub-mammary Lymphangitis.* Dubar<sup>5</sup> reports the following interesting case:

A woman of sixty-five years entered his service in November, 1894, complaining of intense pain in the left breast and of inability to lift the left arm.

Examination showed a large reddened area under the breast and the border of the pectoral, the size of two palms. This plaque was indurated and slightly edematous. The skin around it had lost its suppleness. It was rigid and appeared to be a part of the structures immediately beneath it. In the center of the plaque was an area of 4-5 cm. circumference, grayish-red in color, softened with-

out actual fluctuation. From the indurated plaque under the border of the great pectoral extended a hard cord-like mass. The left breast was healthy; there was no induration about it. The arm and forearm showed nothing remarkable. The woman had always enjoyed excellent health; no excoriation or wound on the thorax was found. Fifteen days before entrance she had made a small accidental wound on the dorsal surface of the index finger of the left hand. The next day she accidentally struck this spot a severe blow. The finger became blue, then yellow, without showing a second wound from the blow. Examination of the finger showed a slight scar on the dorsal aspect of the second phalanx, still slightly inflamed. No care had been taken of these different lesions, and without Dubar's questioning they would not have been discovered. The week following these injuries there was no redness of the hand or arm, but stiffness in executing movements and a little pain in the axilla (left). She began then to feel sick, but her appetite was good. The next week she was sicker. It was hard for her to lift the arm. There was burning and a lancinating pain in the left side of the chest which brought her to the hospital.

The day after her entrance the skin at the center of the plaque showed a fluctuating spot containing reddish-gray liquid. The next day several gray gangrenous spots appeared in the neighboring tissues. An incision, 3 cm. long, evacuated some fetid pus. At the bottom of the incision a big "pacquet" of dead tissue intimately connected with the deep tissues of the chest wall was found. Two days afterwards there was no improvement. A larger incision was made, much pus, extremely fetid, evacuated, and long and thick pieces of dead tissue also removed. Next day there was great improvement in all the symptoms. The cicatrization of the defect went on well except that at the external angle of the wound there was induration. From here a serous liquid (cutting lymph radicles?) was discharged daily. Near this place was a large indurated axillary gland. December 16, the woman was discharged; the wound cicatrized; all that remained was a swollen axillary gland, not tender to the touch.

This case, Dubar remarks, was one of much interest—a rare lymphangitis, gangrenous in form, on the chest wall, from an infected wound of the finger. The septic lymph, after having traversed the lymphatics of the arm and axilla without causing trouble, accumulated and engorged the axillary glands; but for some unaccountable reason (perhaps the obstruction to the course of the lymph by

the much engorged and indurated glands) this septic lymph on arriving at the lymphatic ganglia took a retrograde course in the vessels to the sub-mammary lymphatic reservoirs. Similar cases have been reported, says Dubar.

Velpeau<sup>6</sup> reported enlarged axillary glands and a vast abscess of the right breast from ulcerated lesions of the finger tips. As a sign of the recurrent march of the process a cord of indurated lymphatics was traced from the breast to the axilla.

#### CONCLUSIONS:

Acute lymphangitis is a subject well worthy of the surgeon's thought. A patient with this trouble harbors possibilities for most profound systemic disturbance.

Absolute rest and immobilization of the part affected is the most important treatment, as of a fracture.

Lymphangitic glands (irritative) should never be incised; they swell up on account of the poison (septic lymph), act as barriers to it, and their removal may flood the individual with a disastrous infection.

The simple cases almost invariably get well without incisions, which are rarely indicated; pus infection is not a common complication in the primary form.

#### REFERENCES:

- <sup>1</sup> Peirsol. Anatomy; The Lymphatics, p. 391.
- <sup>2</sup> Coplin. Manual of Pathology, 1911, pp. 542-43.
- <sup>3</sup> Keene. Surgery, 1907, article on Lymphangitis.
- <sup>4</sup> Pyhaubert. Journal de Médecine de Bordeaux, No. 32, August 6, 1905, p. 576.
- <sup>5</sup> Dubar. L'Echo Medical du Nord, Vol. 2, 1898, p. 246.
- <sup>6</sup> Velpeau. Thèse de Bennezon, 1884.

## FRACTURES AND THEIR TREATMENT.

By A. W. COLCORD, M.D., Clairton, Pa.

(Continued from June Number.)

#### TREATMENT.

The various therapeutic measures in treatment, many of which have been already described, may be discussed under the heads:

- I. Reduction.
- II. Retention.
- III. Mobilization and Massage.
- IV. Open (operative) Treatment.
- V. Treatment of Complications.
- VI. After-Treatment.

#### I.—REDUCTION.

Let it be stated, first, that a broken bone does not naturally stay in a position of displacement; that its natural position is the correct one; that there must be some unusual causes that act to displace fragments and keep them in a wrong position, and

that if we can find these causes and remove them, reduction will be easy, often spontaneous, and retention simply a matter of rest in the correct position. These causes are:

1. The original violence causing displacement.
2. Muscular spasm.
3. Swelling, extravasation of blood and serum.
4. Interposed soft parts.
5. Attached periosteum with rough, jagged ends of bone interfering with reduction.
6. Gravitation.
7. Wrong position of the limb.

1. *Muscular Spasm*.—This is the most important obstacle in the reduction of fractures and has al-

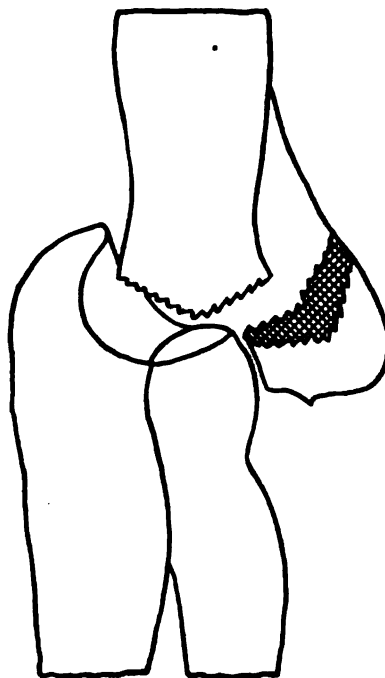


Fig. 2. Diagram of diacondylar fracture of humerus with posterior displacement, showing stripping of periosteum.

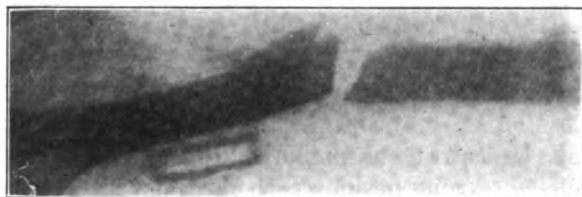
ready been discussed. When muscles are relaxed, reduction should be easy, nearly painless, and should be free from the rough injurious methods still used by some surgeons.

2. *Swelling*.—This may be a cause of displacement if not evenly distributed about the fragments, though it is relatively unimportant. It is best treated by rest, position, accurate reduction, snug splintage and proper massage. The best time to reduce a fracture is *immediately after it happens*. Every hour of delay renders it more difficult. If muscles are allowed to remain in a state of spasm several hours with the surrounding extravasation, they gradually become infiltrated and fixed in this condition. It is then almost impossible to stretch them. The swelling changes contour, obliterates bony landmarks, makes both diagnosis and reduction

more difficult, and leaves the surgeon in doubt as to whether he has secured accurate coaptation. However, if such a delayed case comes into your hands, it is best to—

- (a) Take an x-ray picture and see what work is before you.
- (b) Give an anesthetic, stretch out stiffened muscles and replace bones accurately.
- (c) Take an x-ray picture after reduction.
- (d) Explain to the patient and his friends the difficulty in getting good results after such a delay.

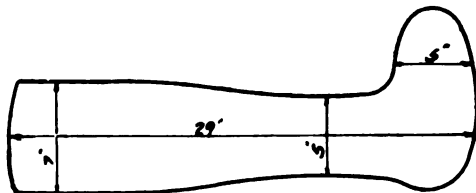
3. *Attached Periosteum*.—This not only makes reduction difficult, but when stripped up on one side, makes accurate reduction imperative. The periosteum is an osteogenetic membrane, and, as the accompanying drawing shows, makes a space wide of the bone which will fill up with granulation tis-



**Fig. 3.** Fracture of humerus showing displacement by gravitation. Taken four days after fracture. Internal angular splint first used for four days. Note angular displacement caused by weight of forearm. Change then made to large wedge-shaped pad from axilla to elbow with coaptation splint to arm, which was bound to body. Forearm free to move on elbow. Weight of forearm supported on wide sling from elbow to hand. Result: Good apposition, firm union, no apparent bony deformity, and excellent function.

sue. This later becomes a part of the bony callus and adds much to the deformity and loss of function. Such results are frequent in fracture of the lower end of the radius, or lower end of the humerus with backward displacement.

4. *Bony Fragments*.—If jagged ends of bone become interlocked in displacement, this can be easily overcome after the muscles are relaxed by gently



**Fig. 4. Pattern for Buchanan splint as kept made up and used in Mercy Hospital, Pittsburgh, Pa.**

pulling the ends apart and pushing them into place. In comminuted fracture, loose fragments may give trouble. Here an anesthetic may be necessary or even operative treatment.

5. *Interposition of Soft Parts.*—This is often a very difficult matter to overcome, and not only prevents accurate reposition of fragments, but renders

retention difficult, and is said to be a frequent cause of delayed union or non-union. If it persists after all attempts at reduction, the fracture should be treated by the open method, provided the surgeon has the requisite skill and means at hand to do aseptic work.

6. *Gravitation*.—The limb, after reduction and

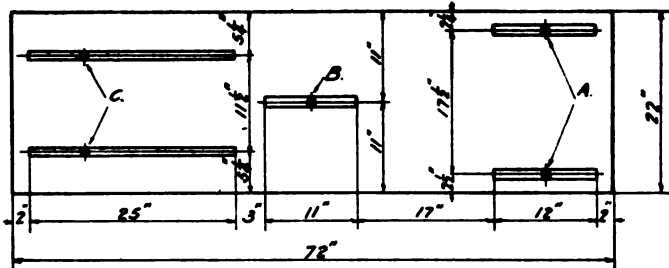


Fig. 5. Drawing of Bradford table. A, Shoulder support,  $\frac{5}{8}$ -inch steel bars. B, Perinea. bar, 1-inch steel bar. C, Ankle grips,  $\frac{5}{8}$ -inch steel bars.

splintage, should be so supported that the fragments are not again displaced by weight of the limb. The writer had one case of fracture of the shaft of the humerus where the weight of the elbow and forearm kept the fragments pulled one-half inch apart, as shown by the x-ray, and it was necessary to support the elbow. The weight of the foot will tend to rotate the lower fragment outward in fractures of the leg or thigh, and the weight of the arm and shoulder drag downward, inward and forward the outer end of the fractured clavicle.

7. *Position of the Limb.*—This should be such as to take all pull from the muscles and make

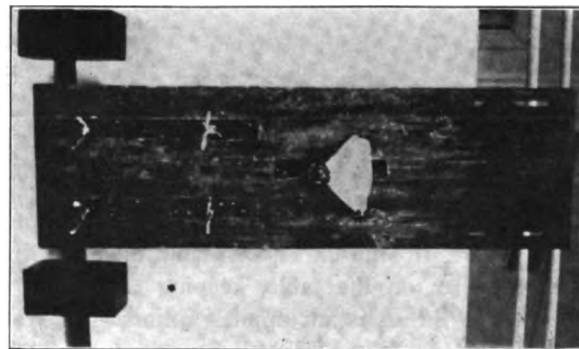


Fig. 6. Photograph of Bradford table; view from above.

the limb comfortable. In fracture of both bones of the forearm, place the limb midway between pronation and supination. This not only relaxes the muscles, but puts the bones farther apart and prevents fusion of the callus of both bones with consequent loss of rotation. An elevated position of the limb will often aid in reducing the swelling. In joint fractures where ankylosis is feared, we put the limb up in the position of greatest usefulness—"a straight knee and a crooked elbow."



In joint fractures the position of the joint will often assist in reduction. In those of the lower extremity of the humerus acute flexion will usually pull the fragments into place and retain them. In Pott's fracture inversion of the foot is usually needed.

As before stated, each case of fracture is a problem in itself which cannot be solved by "rule of thumb." Each, for its reduction, requires a knowledge of the anatomy of the part, of the pathology of fractures, of mechanics and good "surgical horse-sense."

I wish, once more, to emphasize the importance of gentleness in the reduction of fractures. The soft parts have been injured enough already without the surgeon adding to the injury, and the patient has suffered pain enough.

Have splints ready and padded before reduction is made, and hold the fragments accurately in position while an assistant applies them. If possible, take an x-ray picture to see whether the fracture is properly reduced. In fractures of forearm I prefer to have the patient sit beside a small table with the forearm lying on it. An assistant is at

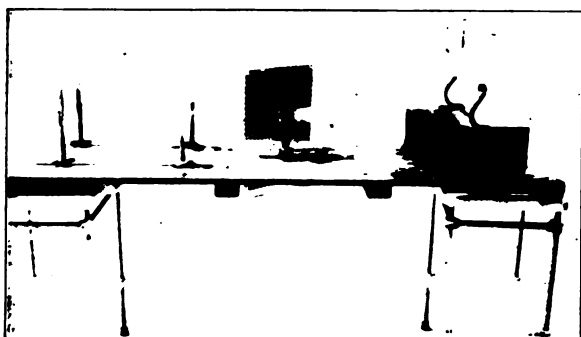


Fig. 7. Photograph of Bradford table; side view.

hand to make gentle traction if needed. After reduction is effected any movement of the arm may cause return of muscle spasm and displacement. Hold the arm on the table, keeping the bones in place while the assistant applies splints. In fractures of the leg, have patient lying on a table, operating chair, or hard bed.

In impacted fractures, do not break up impaction unless there is considerable bony deformity. Lucas-Championnière (*Traitement des fractures*, p. 24) says: "Certain deformities which do not involve angular deformity or alteration of axis are to be left alone."

Accurate reduction is all important, not only for the patient's good, but for your own peace of mind and reputation. Do not leave a partial reduction to be finished by splint pressure. Some evils of faulty reduction are:

1. Pressure on bloodvessels, causing stasis and, later, hyperplasia, matting and stiffness.
2. Pressure on nerves, causing pain and often permanent nerve injury.
3. Stretching of periosteum, causing muscular spasm with later contracted muscles.
4. Increased swelling with hard edema later.
5. Large callus, increasing deformity.
6. Sometimes fibrous union, delayed union, or non-union.

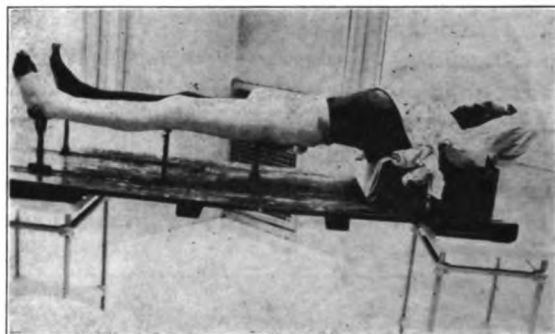


Fig. 8. Patient on Bradford table; femur splint applied.

7. If near a joint, limitation of joint motion from wrong position of bony fragments.
8. Shortening, if the ends of the bone overlap.
9. Angulation. This alters the "bearing" of nearby joints, causing serious changes in joint surfaces, often requiring one or two years for the joint to adapt itself to the new kind of pressure. This fact is used by Mr. Lane as one of the strongest reasons for accurate anatomical results.
10. Displacement of stripped periosteum with consequent enlargement of callus, above described.

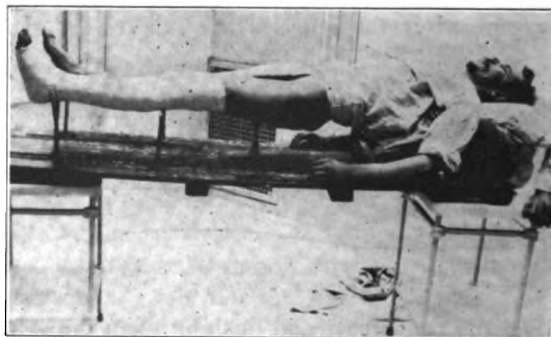


Fig. 9. Patient on Bradford table; leg splint applied.

11. Permanent loss of function of soft parts, by catching of tendons, muscles, fascia, ligaments, bloodvessels or nerves in the large callus.
12. Unsightly bony deformity.

## II. RETENTION.

The subject of retention has already received some consideration. There is yet to discuss splintage. The objects of applying a splint are three:

1. To hold bony fragments in position.
2. To place the whole limb at rest.
3. To stop pain and muscular spasm.

1. *Retention of Fragments.*—The splint should be adapted to the work it is intended to perform. It should be long enough and strong enough to hold the fragments firmly in position. Failure to do this is to invite pain, spasm, exuberant callus, delayed union and deformity. This seems so obvious that it seems almost axiomatic, but in the writer's own



Fig. 10. Fracture of middle third of femur, antero-lateral view. (Dr. W. O'Neill Sherman.)

observation it has been a frequent cause of failure.

2. *Rest.*—The most important single remedy we have to restore a sick organ to health is rest; whole volumes have been written on its uses. The writer believes that the more perfect the immobilization of the limb, the more rapidly will the injured parts recover. This may seem to disagree with what he still has to say about mobilization and massage, but the latter are therapeutic measures to be used under restricted conditions, at proper time, in proper ways and in correct dosage. Immobilize the joints above and below the fracture and put on the splint so it will exercise an even pressure, just firm enough so it will not cause pain or obstruct circulation. If this is done properly it will do much to stop pain and spasm. Lexer speaks of this effect of pressure in producing physiological rest.



Fig. 11. Fracture of middle third of femur, lateral view. (Dr. W. O'Neill Sherman.)

The writer keeps constantly on hand a set of clear white pine splints in the following dimensions and several splints of each kind:

- 48 x 6 x 5-16.
- 24 x 4 x 3-16.
- 18 x 3 1-2 x 1-8.

These can be made in any carpenter shop, in lots to suit, and are readily trimmed with pocket knife to sizes and shapes needed. Six-inch hardwood spatulas are used for fingers. These are padded as required with folded sheet wadding, held in place with bands of adhesive. In case of most fractures these wood splints are used during the stage of

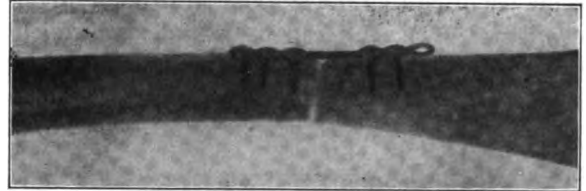


Fig. 12. Fracture of middle third of femur, treated with Lane plates. Antero-lateral view. (Dr. W. O'Neill Sherman.)

swelling—usually for four to eight days. They may either be continued during the whole treatment or changed later to sole leather, plaster-of-Paris, the copper Levis splint, or the woven wire splint of DuPuy, according to the nature of the case. I have had little experience with silica or starch splints, but believe them inferior to plaster-of-Paris. The lateral splint devised by Dr. Buchanan of Mercy Hospital, Pittsburgh, Pa., is a useful one in some fractures of the leg. This is made of two pieces of lint, cut to fit the side of the leg, extending four inches above the knee and to the base of the toes. Four to seven pieces of crinoline are cut the same shape and into these plaster-of-Paris is rubbed with a spatula. These layers are tightly rolled, soaked a few seconds in warm water,

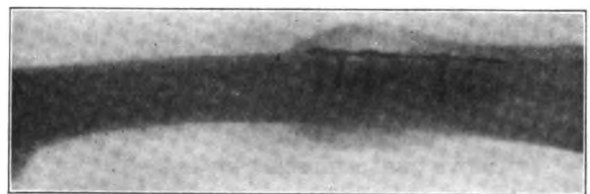


Fig. 13. Fracture of middle third of femur, treated with Lane plates. Antero-posterior view. (Dr. W. O'Neill Sherman.)

and spread on one of the pieces of lint on a flat surface. The other piece of lint is placed on this, and the splint is laid against one side of the leg (if a compound fracture the first splint is applied to the well side), and a roller bandage applied. A similar splint is now put on the other side in the same way. In compound fractures the splint last put on may be removed for dressing of the wound without disturbing first one. Of course, this splint may be cut to fit any length of limb, may be made to come only to the knee if desired, and the principle can be applied to arm fractures.

The plaster case, or all-around splint, is familiar

to all. Under the plaster I use sheet wadding, torn two or three inches wide, rolled and applied like a roller bandage, or a ladies' wool stocking on the leg. There is little danger of getting the plaster too tight, as it expands when it takes on water of crystallization. It should be removed in two days to one week, either by cutting down the two sides of the leg or cutting the top and bottom. With care it will not break and can be reapplied during the whole treatment. I take out a section one-half inch wide from the top, to tighten it as the swelling

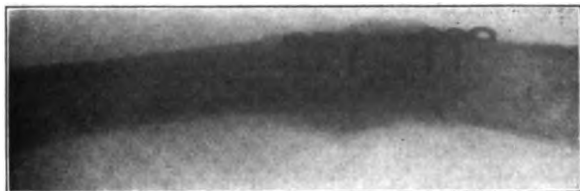


Fig. 14. Fracture of middle third of femur. Antero-lateral view three months after operation. (Dr. W. O'Neill Sherman.)

leaves the limb. After two weeks the portions used to immobilize the joints may be cut off from top and bottom, allowing free motion of the joints.

Dr. C. L. Bradford of the South Side Hospital, Pittsburgh, Pa., has treated a series of cases of fractures of the femur with plaster-of-Paris, with excellent results. I give the important steps in his treatment:

- (1) Anesthetize to complete relaxation.
- (2) Put on the fracture table.
- (3) Reduce the fracture and keep the leg straight at the hip and knee. Accurate coaptation is important.
- (4) Apply the plaster bandage from the 8th rib to the toes, with strong spica over the hip.
- (5) Take an x-ray picture.
- (6) Leave it on three or four weeks. Then remove and examine.
- (7) Reapply the plaster and keep it on till the leg is strong.

He claims the following advantages:

- a. All muscle spasm stops as soon as the cast is applied, and the patient is comfortable from this during the whole treatment.
- b. Patient can be moved anywhere without danger of displacing the fragments. The nursing is easy.
- c. There have been no cases of non-union, delayed union, angulation or shortening.
- d. The function of the limb (except in cases of severe injury of the soft parts or septic cases of compound fracture) rapidly returns and is always good.

I have seen a number of these cases and believe

the treatment to be all that he claims. Much of his success in this work and in other fractures is due to the use of a table which he has devised, of which I have given you a description: It is made of two and one-half-inch plank, bound around the edges with steel straps. In it are five rectangular slits cut as in the diagram. These are also lined with steel straps. In these slide steel upright supports for the body, adjustable as to height and to position, and are held in place by nuts on the under surface of the table. A steel "Y" shaped support catches the heel like the old-fashioned boot-jack, which can make traction on the leg. Counter-traction is made by the hooks in the arm-pits and the one-inch perineal upright bar, to which is attached the quadrant for supporting the sacrum. These steel supports are padded with clean gauze, and when on this table the patient is held firm, straight and comfortable while the plaster is applied to any part of the body desired. The accompanying cuts will illustrate this.

I have gradually changed my views in regard to plaster-of-Paris in the past few years and am becoming somewhat enthusiastic over its use. It takes ripe judgment to know just when to put it on, and much skill to know how. There are, no doubt, a few fractures where it may be used at the start, but I still cling to the pine boards for the early treatment. I believe the flat board splint is absolutely essential in fracture of both bones of the forearm, where we must keep the radius and ulna apart, where we can use the layer of muscles to push them apart and the interosseous membrane to keep them from separating too far.

### III. MOBILIZATION AND MASSAGE.

There has been a growing feeling among surgeons, for the past ten or twenty years, that the treatment of fractures has not kept pace with other

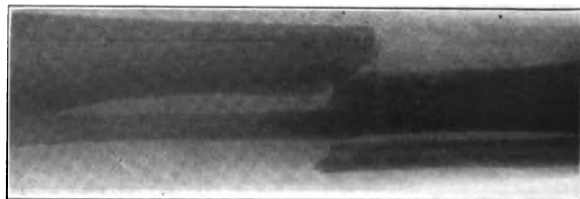


Fig. 15. Compound fracture of middle third of tibia and fibula (comminuted); lateral view. (Dr. W. O'Neill Sherman.)

branches of surgery. Sir Alfred Pearce Gould remarks: "The treatment of simple fractures is but little better or more successful to-day than it was a generation ago." Mr. Lane says: "The treatment of fractures, as it exists at the present, is a disgrace to surgical practice."

The bad results of treatment of fractures can be viewed from two standpoints. The one looks mainly at bony deformity as a cause of loss of function. Mr. Arbuthnot Lane suggests as a remedy the open treatment of all fractures with steel plates and screws applied to the fragments. He and his followers regard injury to soft parts as a matter of secondary consideration. The other standpoint looks mainly to the injury of soft parts, with the resultant stiffness, swelling, atrophy and dystrophy, as the cause of loss of function. Lucas-Championnière of Paris has for some years treated fractures by massage and mobilization with a view of preventing these permanent changes in the soft parts. American surgeons visiting his clinic return enthusiastic in praise of his work. He begins at once, before reduction, with five to ten minutes of light stroking upward, along lines of muscle and veins. This, he claims, stops pain and muscle spasm, reduces swelling, and makes reduction easy. This massage is continued daily for most cases, always keeping away from the point of fracture, always stopping short of producing pain, gradually increasing the pressure with each seance, and avoiding anything that will cause too much movement of fragments.

Mennell in his book\* describing this work, reports four hundred cases treated by these methods in a London hospital. He claims for the method:

1. That it favors callus formation and hastens its ossification.
2. That it stops pain and muscle spasm and reduces swelling, restoring a healthy circulation to the limb.



Fig. 16. Compound fracture of middle third of tibia and fibula. Detached piece devoid of periosteum. Lateral view. (Dr. W. O'Neill Sherman.)

3. That it prevents the large deposit of scar tissue about muscle, tendon and nearby joints; i. e., prevents permanent stiffness, deformity and loss of function.
4. That it shortens the period of disability. As soon as the bones are firmly united the limb is "ready to use."
5. That while the treatment of bony fragments

(reduction and retention) is important, it is not so important as the restoration of the soft parts.

6. That changes in soft parts are mainly responsible for loss of function, and that the old method of prolonged immobilization is wrong in that it favors these changes, prolongs their effects, and tends to make them permanent.



Fig. 17. Compound fracture of middle third of tibia and fibula. Lateral view 3 1/2 months after operation. (Dr. W. O'Neill Sherman.)

The mobilization is begun soon after the fracture, in some fractures at once, in others three or four days after, and consists in movements of nearby joints, at first very slight, but increasing each day the range of motion. He emphasizes the fact that this is a therapeutic measure, powerful for good or harm, and must be administered at the right time, in the right way, and in the proper dosage.

I have discussed this method somewhat at length, because I am convinced that it has much in it of merit, and although we cannot share all the views of Lucas-Championnière, which seem to us somewhat extreme, we can, at least, pay more attention to the restoration of function and introduce massage and mobilization earlier in the treatment. In my opinion the changes in soft parts deserve more attention than they have heretofore received, and too long immobilization has been responsible for many of the bad results in fracture treatment. That there is a tendency among American surgeons to recognize this fact is shown by the late writings of a number. (See Clinics of John B. Murphy, second number; also article on fractures by J. William White, in a book soon to be published.)

Perhaps the attitude of most American surgeons toward the views and methods of Lucas-Championnière can be best expressed in an extract from a letter from Albert J. Ochsner of Chicago: "For the average surgeon, I am sure that this would be a very unsatisfactory or even dangerous method to follow. \* \* \* These methods are extreme in so far as they can be carried out only by a genius. \* \* \* These ideas are not being generally accepted and I am sure they will not be generally accepted by American surgeons."

\*The Treatment of Fractures by Mobilization and Massage. James B. Mennell, McMillen & Co., London.

## IV. OPERATIVE TREATMENT.

Reference has frequently been made in this paper to the open treatment of fractures. There are several reasons why the successful operative treatment as a routine measure will be confined to a few men. The trauma of soft parts about a fracture lowers the vitality of the tissues and lessens their resistance to infection. This makes it impossible to get good results, except under the most perfect conditions of asepsis.

To properly apply any device to a bone for fixation of fragments requires unusual mechanical

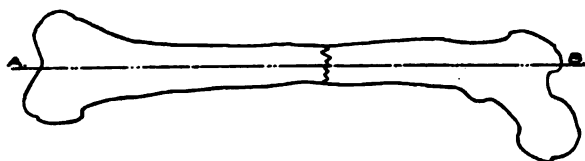


Fig. 18. Good apposition without angulation. Note where axis of femur strikes knee-joint.

skill, specialized instruments, and trained assistants. The surgeon must be a master of operative technic and can only learn to do this work well by long practice in a large clinic.

Mr. Lane has done splendid work and gets excellent results, but men of his skill and training are not plentiful. Most American surgeons take a more conservative view of the open treatment and prefer to operate only on those which:

- (a) Cannot be reduced by ordinary methods,
- (b) Cannot be retained in good position,
- (c) Are comminuted,
- (d) Have failed to unite with ordinary treatment,
- (e) Have persisting gross deformity, or any deformity interfering with function.

Dr. William O'Neil Sherman of Pittsburgh, Pa., has recently reported a series of seventy-six cases of open treatment with Lane's plates (*Journal of the A. M. A.*, May 25, 1912). Some of these were my own cases and I have had an opportunity to watch the results. I present, through courtesy of Dr. Sherman, some plates illustrating his work. For details of this, the reader is referred to the above named article.

## V. AFTER-TREATMENT.

Reference has already been made to the evil effects of too long immobilization. No rules can be laid down for all fractures, nor for any particular one, but massage of soft parts and mobilization of nearby joints should be begun early. It should be gentle at first. In the ordinary Colles' fracture I massage the forearm and hand and make passive motion of the fingers from the start. Movements of the wrist are begun about the fourth day and

are continued every one or two days during the whole treatment. In the use of massage follow the suggestions of Lucas-Championnière, as to direction, gentleness and dosage. First passive joint movements are very slight and are increased slowly, attaining full range of motion in two or three weeks. In other fractures where bones are freely movable, greater care must be exercised in beginning either massage or passive motion. So much depends on the skill of the surgeon in employing this method that one surgeon cannot advise another when to begin it. I am resorting to massage earlier in fracture cases as I learn more how to use it.

However, there comes a time in every fracture when massage and passive motion may always be employed with safety and benefit. This is when the bones are firmly united, but the soft parts have not fully recovered from stiffness, soreness and swelling. Then I believe good function will be hastened by hot air (the hyperemia of Bier) for twenty minutes, followed by twenty minutes of massage daily. This is especially true of fractures near joints where there is some form of ankylosis. Here electricity also will be of benefit. Do not keep joints immobilized too long above and below a fracture. Make early passive motion in them yourself and, as soon as safe, remove splints from joints and allow patients to use them freely.

## A FEW HINTS IN CLOSING.

1. The most frequent cause of delayed union in my experience is syphilis. Do not wait for non-union in these cases, nor trust the word of the patient as to whether he has had the disease. Examine the epitrochlear glands of every fracture patient, and if you find them enlarged and find other

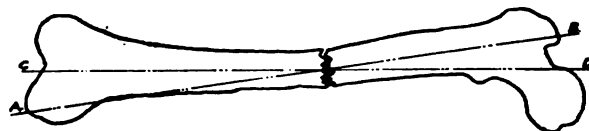


Fig. 19. Good apposition, but 8 degrees of angulation. Note where AB, axis of upper fragment of femur, strikes knee-joint, changing weight-bearing surface of joint. CD, axis of lower fragment.

evidences of syphilis, give appropriate treatment from the start.

2. Treat any other constitutional disease you may find in a fracture case—give the tuberculous cases fresh air treatment, the anemic ones iron and arsenic, etc.

3. Many patients will not endure the Sayre adhesive bandage in fractured clavicle. In these try the DuPuy woven wire splint. It is much more comfortable and produces results nearly as good.

4. Do not spend much money on the various

splints on the market. Use your ingenuity and make your own splints.

5. In compound fractures observe the following order of procedure:

- (a) Remove clothing carefully—cut it off.
- (b) Cover the wound with cotton or gauze, wet with 1:2000 mercury bichloride or cyanide.
- (c) Scrub the hands (both surgeon's and assistant's).
- (d) Prepare splints and dressings.
- (e) Give an anesthetic if necessary.
- (f) Cleanse and shave the whole limb.
- (g) Examine the fracture. If necessary to insert the finger into the wound, use gloves. First cleanse the wound well.
- (h) Reduce while patient is still under the anesthetic. Protruding ends of bone should be carefully cleansed before reduction.
- (i) Dress and apply splints. Many compound fractures may be dressed without drainage. Carefully trim off all severely bruised skin and soft parts, and use a small rubber tissue drain, if needed, for twenty-four hours.
- (j) Use as careful aseptic technic as in abdominal operations.

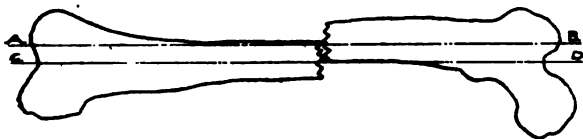


Fig. 20. AB, axis of upper fragment of femur. CD, axis of lower fragment. Poor apposition with lateral displacement of one-half width of bone, yet axis of lower fragment is parallel to that of upper, and bearing of knee-joint is unchanged. There will be a much better functional result than in Fig. 19.

I treat compound fractures of the fingers and hand with a constant wet dressing of Ochsner's fluid (alcohol, one part; saturated solution of boric acid, three parts) for several days. Here the woven wire forearm and hand splint of DuPuy is convenient. A large number of these cases have been treated in our service without any infection during the past three years.

Murphy's method of treatment of compound fractures (summarized from *Surgical Clinics of John B. Murphy*, April, 1912) is as follows:

1. The emergency surgeon must keep away from the wound, applying only a "primary conservative dressing."

2. On arrival at the hospital any grease on the surface of the limb is cleaned away with benzin without letting any flow into wound. Then without removing the hair, the limb is soaked with tincture of iodine. In children a tincture of half-strength is used.

3. Fingers are never introduced into the wound, nor instruments, except to remove dirt or a piece of bone separated from its periosteum.

4. No solutions of any kind are used in the wound. "Never wash, scrub, handle or touch the lacerated surfaces, either bone or soft parts."

5. Protruding points of bone are taken off with chisel or bone forceps.

6. Edges of skin are trimmed with scissors and forceps, removing contused portions so that they may be accurately coapted.

7. The wound is sutured with horsehair, using a tension suture of silkworm gut if needed. No drainage is employed.

8. The wound is dressed with a large quantity of 5 per cent. moist carbolic gauze.

9. Immobilize and place the limb in an elevated position.

10. Do not remove dressings for primary elevations of temperature during the first forty-eight hours ("fibrin temperature").

11. If the increased temperature continues during the second forty-eight hours (100 to 103), remove the dressings and allow the wound secretion to escape, removing a stitch if necessary. Put on another gauze dressing. If the temperature goes to normal, keep this dressing on until the wound is healed.

12. Never wire or plate a compound fracture. Wait until it has been converted into a simple fracture.

13. Crushing injuries by direct violence are treated according to the nature of the case.

## POSTOPERATIVE COMPLICATIONS AND THEIR TREATMENT.

By JAMES ALLMOND DAY, M.D., Jacksonville, Ill.

After the completion of a surgical operation of major importance the surgeon has only just begun the most essential and many times the most difficult part of his task—the care and treatment of the patient during a limited period subsequently. It is not during the course of the operation alone that the experienced surgeon is most concerned, as he realizes that the greatest danger to his patient exists *after* he has been removed from the operating table.

The ability to recognize and differentiate postoperative complications as well as to prescribe the appropriate treatment is by far the most important attribute of the surgeon, and constitutes the greatest element necessary to success in surgery. There is no doubt but that many skillful operators often lose cases solely on account of their inability to recog-

nize and properly care for complications that arise shortly after operations.

Greater skill and better judgment are required to properly diagnose, treat, and prognosticate postoperative complications than are necessary for the performance of the most technical operation. This skill and superior judgment can be acquired only through years of special training and actual experience in surgical work.

This being so, it is easy to see the absurdity of entrusting cases just operated on to an inexperienced assistant, as is frequently done in hospitals by many of our busy surgeons. It is self-evident also that a knowledge of the condition that existed during the operation, which could be known in any degree of certainty only to him who performed it, is many times obviously necessary in order to anticipate and recognize the complications that may later arise in a given case.

Therefore, it stands to reason that an injustice is being done a patient when he is deprived of the skill and special attention due him from the one who performed the operation and who was employed to see him through such an important crisis. Of course, if the case should progress favorably from the beginning and nothing should arise to indicate serious complications, the subsequent treatment in most instances would be comparatively simple and no great skill would be necessary to follow it up. Ordinary common sense rules for nursing postoperative cases would suffice. But unfortunately many times we are suddenly confronted with unexpected emergencies, even in those cases that are apparently progressing favorably, and here skillful services are necessary to combat the condition.

If, from the beginning, it is a serious and almost hopeless case, the skill of the surgeon is taxed to its utmost in order to prevent a fatal issue, and there is no doubt that there are many cases in extremis which, when intelligently diagnosticated and promptly and appropriately treated, are saved from death; whereas, if they had been obliged to meet such a crisis under the care of incompetent and inexperienced persons, the chances would have been decidedly against them.

No surgical case—it matters not how simple it may be—is exempt from the possibility of complications, nor is there any time during the convalescing period when a patient is free from such contingencies.

Complications may arise at any time, beginning with the very moment when the patient is removed from the operating table, and although the most

common period for complications to develop is during the days immediately following the operation, serious developments may occur many days remote from it.

This is further convincing evidence that those in attendance should be thoroughly competent and observing in order to recognize at any time the early symptoms of approaching danger.

The numerous complications which may follow operations are of great diversity and varying severity. Some of the complications that arise might be more properly called "accidents," and it should be understood that under proper conditions these could have been prevented, such as avoidable infection, unnecessary exposure, improper preparation, etc. The error through which they arose is obviously easily recognized, and what might terminate in a grave condition can often be brought to an abrupt end by prompt and appropriate treatment. The natural complications, or those without any known cause, which frequently follow operations and which are apparently unavoidable, are usually of less importance to the surgeon in the way of treatment, as in most instances, like in many acute diseases, they follow a natural course and are self-limited.

I would cite as examples of accidental complications, as suggested above, those due to unsuitable or improperly administered anesthetic, foreign infections, incomplete or improper ligation of vessels with resulting secondary hemorrhage, insufficient or improper drainage, injury to viscera, careless handling and undue exposure of the patient during and shortly following the operation, etc., or conditions due to what might be termed "surgical blunders."

As examples of natural complications, I would mention those due to predisposing causes peculiar to the patient himself and not directly due to surgical errors, such as syncope, shock, unavoidable hemorrhage (from special idiosyncrasies), embolism, extension of pre-existing infection, acute nephritis, gastro-intestinal disturbances, and the various thoracic and cerebral diseases.

In a paper necessarily brief as this must be, it is impossible to discuss all the complications that may occur after an operation. I will, therefore, consider only those most frequent and dangerous which will include both the accidental and the natural varieties.

Dangerous complications may occur after an operation from a variety of causes acting singly or in combination. The most common and dangerous, given in the order of frequency and severity, are



shock, hemorrhage, and the various gastro-intestinal postoperative disorders, such as acute dilatation of the stomach, intestinal paresis, and peritonitis. Later pulmonary and renal complications may develop.

If shock is accountable for the trouble, it is likely to occur during the first few hours after an operation, most frequently immediately following or even beginning during its performance, especially if it is prolonged and of a mutilating nature, which, as Crile has pointed out, produces exhaustion of the vasomotor center from long continued peripheral irritation. Operations in the region of the upper abdomen seem especially prone to produce this result. It is claimed that in rare instances shock does not occur for many hours after the operation and may be mistaken for hemorrhage or other serious complications. The character of the etiological factor accountable for this secondary or "delayed" shock is still quite problematical, as is any form of shock for that matter, although some consider that it is the result of over-stimulation at the time of or shortly after the operation. One author blames hypodermic injections of strychnia administered by the over-anxious anesthetist for a "pulse that is getting a little rapid," and claims that after the effect dies out shock results.

For my part, I have never seen a case where I was satisfied that such a condition existed, and I believe (except in the aged and those of debilitated constitution, where exhaustion would be a better term to apply to it) that the symptoms arising and simulating shock late in an operative case can in most instances be accounted for in a more rational manner, namely, secondary or delayed hemorrhage, with its accompaniment, collapse, which probably, is often the real element that masquerades as delayed shock. It is quite possible also that other obscure, serious and sudden accidents that produce a profound impression on the central nervous system may be responsible for the condition, or it might be explained as the result of a rapid absorption of some toxic substance which naturally cripples the respiratory and circulatory centers.

The symptoms of postoperative shock—extreme depression of the nervous system, weak, accelerated, intermittent, irregular heart action, irregular respiration, extreme pallor of the lips and face, cold, clammy perspiration, anxious expression, subnormal temperature, hebetude, etc.—are so familiar to surgeons that they require no detailed rehearsal. No single cause can be held accountable for the train of symptoms designated as shock which follows a long continued serious surgical operation. It is the result rather of a combination of factors,

viz., the anesthetic (quality and kind of drug and the method of administration), excessive hemorrhage, long-continued and rough handling of delicate structures and organs, chilling of the body, and exhaustion of the nervous system due to the length of time spent necessarily in the operation. These are alike responsible for the prostration that follows such cases and which has popularly been termed shock.

The mental and nervous element must not be lost sight of as a predisposing factor in the production of this state. Fear has always excited quite a strong influence as a predisposing cause in shock, and should be eliminated as much as possible from the mind of the prospective surgical patient for this reason.

The milder cases of shock are characterized by the absence of the more serious symptoms above named, and are usually attended with nausea and vomiting, caused by hyperemia of the brain following the existing anemia, and when this occurs during the course of severe shock, reaction usually follows unless these symptoms are due to some serious accompanying gastro-intestinal complication or peritonitis. When reaction does occur, whether due to treatment or not, there is a gradual return of bodily warmth, the pulse becomes less rapid, stronger and of greater volume, the temperature approaches normal or may even go above this, consciousness and lost muscular power return.

The prognosis depends upon the time and severity of the shock as well as the diligence and intelligence of those in attendance. Some cases respond to no treatment whatever and gradually continue to a fatal termination.

Hemorrhage is frequently an alarming complication following an operation, and there is no doubt that it is often the obscure cause of death, especially if it is concealed. Its cause is usually self-evident to the surgeon who has operated, and in the majority of instances he is able to form an opinion as to where the bleeding vessel lies, realizing as he does the possibility of certain ligatures having been imperfectly applied. Certain vessels may have been overlooked entirely, bleeding from which was temporarily checked through clotting at the time of the operation, or possibly they had retracted so as to be overlooked. The blood clots which temporarily prevent hemorrhage sometimes become dislodged, or a loosely applied ligature may become detached from efforts of vomiting or other violent movements of the patient after leaving the operating table.

There are certain well-known constitutional causes also which predispose surgical cases to bleed-

ing, such as the various septic conditions which produce softening and consequent dislodgment of the clot that closes the cut end of the vessel. Then there are those unavoidable hemorrhages that occur as the result of jaundice or hemophilia, which in many cases respond to no treatment whatever, or at least are very obstinate to manage. Secondary hemorrhage is not as common as it was in years past when septic infections of all kinds were frequent. We still encounter it occasionally, however, and aside from sloughing of the vessel from infection the most common cause is premature absorption or displacement of ligatures. The danger to life from hemorrhage depends upon its locality and the constitutional peculiarities of the patient, its severity, its rapidity of flow, and duration. If it is concealed, the symptoms are necessarily confusing, and many times are not easy to differentiate from those of shock.

The prognosis in these cases depends upon the amount of bleeding that has taken place, the constitutional peculiarities of the patient, and the rapidity with which the hemorrhage is controlled. If the hemorrhage occurs in a hidden cavity good judgment is required to diagnose it, and the fate of the patient depends upon the vigilance of those in attendance and the speedy effort of the surgeon in seeking the bleeding vessels and ligating them.

The symptoms of hemorrhage are often quite typical, but in that class of cases where concealed bleeding follows operations within cavities the diagnosis can only be made by recognizing the characteristic symptoms of hemorrhage in general. Where drains have been inserted, allowing blood to exude through the wound, its presence is easily determined in the dressings.

Hemorrhage frequently follows operations upon the stomach, bile passages, and intestines, and often the symptoms are obscure. The symptoms of internal hemorrhage in general are frequent fainting spells, extreme pallor, great restlessness, irregular sighing respiration, rapid, irregular, thready pulse, great thirst, and a disposition to be very alert and watchful.

When hemorrhage takes place inside of the abdominal cavity the symptoms resemble those following rupture of a pus tube or extrauterine pregnancy. The abdomen in these cases is rigid over the seat of the trouble, and the rigidity gradually spreads over a greater territory as bleeding continues. There is usually tenderness on pressure and a certain degree of tympanites exists. As these symptoms are almost

identical with those of beginning peritonitis, the differential diagnosis is made even more confusing.

Sometimes when hemorrhage takes place inside of the intestinal tract the discovery can be made a few hours after its occurrence by finding blood in the stools or in the matter which has been vomited. This knowledge is frequently of little avail, however, as the time intervening between the hemorrhage and its recognition is usually so long that the patient is almost exsanguinated.

Where no external signs of hemorrhage are apparent, it is impossible to make a positive differential diagnosis between this condition and septic peritonitis, especially if the bleeding is not sufficient to produce symptoms of marked general anemia.

Hemorrhage and peritonitis may co-exist, although internal hemorrhage usually occurs right after the operation, while infection occurs several hours—twenty-four to forty-eight—subsequently. Still hemorrhage may also be delayed or produced directly by the peritoneal infection itself, and this being the case, the *time* of the appearance of the symptoms can be of little assistance in making a correct diagnosis.

The importance of a differential diagnosis in these cases is obvious as far as the treatment is concerned for the reason that re-opening of the abdomen and checking the bleeding must be done without delay, whereas if the symptoms resembling hemorrhage are due in reality to shock of some variety, the necessary violence produced by further surgical interference would be contraindicated and would unquestionably hasten the death of the patient.

Peritonitis, especially if it is general, is a most serious and almost hopeless complication that may arise after an operation, and any attempt to overcome it is probably futile. The matter of proper diagnosis, however, is important in order not only to differentiate it from other postoperative complications but also in order to be able to define the extent of the peritoneal involvement. If a positive diagnosis of peritonitis can be made, the next question to decide is its extent and severity. It is important also to decide whether it is due to infection of the peritoneum at the time of the operation itself, or whether brought about by some other independent pathological lesion, such as the various forms of intestinal obstruction, perforation, rupture of intra-abdominal postoperative abscesses, etc.

The etiology of peritonitis after operation, or any other form for that matter, is simple, being due in all cases, as modern research has shown, to some form of infection. The exact pathological organ-

ism that is responsible in a given case is of some importance, inasmuch as bacteria vary in their virulence and, therefore, produce various degrees of intensity of infection. The differentiation between the various organisms would be of real value in the treatment and prognosis were it possible to identify them during life.

Any infection of the peritoneum, no matter how benign, will cause different degrees of inflammation, and any form, when active enough to involve the greater portion of the membrane, will be followed by death. The peritoneum is exceedingly tolerant and is capable of withstanding a great amount of abuse. This has been repeatedly demonstrated when accidental perforating wounds by means of unclean missiles have occurred without producing peritonitis. On the other hand, it is quite true that very slight wounds may bring on this condition, and even under the most favorable conditions where the best of surgical technic has been practiced, peritonitis may develop.

The diagnosis of postoperative peritonitis is not as a rule difficult, but the extent of the peritoneal involvement and the co-existing complications are often hard to clearly define.

The usual and most prominent symptoms in a case of this form of peritonitis are more or less pain and usually slight vomiting, beginning early and small in amount. The vomiting later becomes more frequent, and the material vomited varies from light green to dark brown in color and may be mixed with blood. It is often very offensive. The pulse is accelerated and becomes gradually more so, and finally is thready in character. Abdominal distention begins early and there is considerable rigidity and tenderness. The temperature is usually low, but there may be hyperpyrexia. Intestinal obstruction is as a rule present, preventing even the passage of flatus. The patient usually remains conscious to the last, but sometimes there is delirium or coma. There is always great restlessness which grows more pronounced as the case progresses toward its termination. These symptoms usually begin from twelve to twenty-four hours after the operation and last from two to four days. Peritonitis which develops within a few days after an operation is almost always fatal.

Acute dilatation of the stomach, acute gastro-mesenteric ileus (or duodenal obstruction), and other forms of intestinal ileus are conditions that are occasionally met with shortly after surgical intervention, and although their etiology is dissimilar, the symptomatology is somewhat alike. They may, therefore, be discussed collectively for the purpose of brevity.

Acute gastric dilatation and gastro-mesenteric ileus are so similar that it is almost impossible to differentiate between them. In each, vomiting begins late, usually after post-anesthetic vomiting has entirely ceased for several hours, and the quantity expelled each time is great. The periods of vomiting are usually far apart and the act takes place with very little effort. The upper abdomen is very much distended, while the lower part remains normal. Over the distended area there is considerable tympanites. The heart is displaced by the great distention of the stomach, and this accounts for the pronounced cyanosis, feeble heart action, and difficult breathing. The temperature is usually normal, or nearly so. Rigidity and tenderness are not present as in peritonitis. The pulse is rapid and small. The bowels frequently move voluntarily, or respond easily to enemas. Reverse peristalsis is common, accompanied by stercoraceous vomiting. In a case I saw recently a high enema consisting of a combination of oil, salts and glycerine was vomited in three to five minutes after administration, proof of which was obtained by observing the oil globules in the vomitus, no oil having been given by mouth. This occurred on two occasions.

In postoperative ileus and similar conditions the lower abdomen is distended, very tympanitic, tender, and painful, and complete obstruction exists. The vomiting is more like that of peritonitis, is more persistent, and becomes fecal at an early period. It may be difficult to differentiate this disorder from acute peritonitis, but the pain is greater, there is increased intestinal peristalsis, and absence of fever, all of which are rather unlikely except in simple acute inflammation of the peritoneum.

The symptoms of ileus differ to some extent, depending upon the particular variety of this complication that exists—whether mechanical, septic, or paralytic.

The prognosis of acute gastric dilatation and the similar condition, duodenal ileus, is grave, although cases are reported where patients were saved by appropriate treatment. If not recognized early and diligently and properly treated, however, these cases are nearly always fatal.

The prognosis in intestinal ileus of other kinds is almost always serious, especially if there is no interference, and even so, it is generally fatal.

Postoperative pulmonary and renal affections comprise the majority of the most frequent complications arising at greater or less remote periods after surgical intervention. Any of these complications may take place any day after the operation and develop frequently when least expected.

Lobular and lobar pneumonia, pulmonary edema,

pleurisy, bronchitis, and like conditions, usually come on not later than the first week after an operation. Hypostatic pneumonia, pulmonary infarcts, abscess, gangrene, etc., usually occur at a later period. The diagnosis is easy, as a rule, as they present much the same symptoms as are found in non-operative cases.

These affections, especially those that follow shortly after the administration of an anesthetic, are frequently due to the agent used, although probably not so often as is generally supposed, as they often occur after a local anesthetic, or when none at all has been given. The extremes of life are most subject to these diseases as well as greatly debilitated subjects, especially when they have weak lungs. The prognosis is usually favorable if no other serious complications are also present.

Renal complications are not infrequent after operations and usually ensue within the first two or three days following. They are quite often caused by the anesthetic, for it is a well-known fact that both ether and chloroform are strong irritants to the kidneys. It is probable though that most cases of nephritis and allied conditions after operations where an anesthetic has been administered may be accounted for by the possibility of pre-existing disease, or special dispositions or idiosyncrasies on the part of the patients.

The symptoms existing in such conditions vary all the way from a mild uremia, with nausea and vomiting, headache, and slight decrease of the urine, to grave uremic poisoning with restlessness, convulsions, coma, and almost complete suppression of urine usually resulting in death.

I have attempted to only briefly discuss the most frequent and serious complications that may follow surgical intervention. The subject is too voluminous to consider in detail. The consideration of the various complications that arise in the wake of surgical operations is so complicated that limited space interdicts its detailed presentation.

Generally speaking, drug treatment in all serious postoperative conditions is with few exceptions attended with very slight results, and like in the treatment of non-operative cases, the methods employed for relief are mostly speculative, and, I dare say, sometimes experimental. Occasionally some mode of treatment will apparently save the patient, however, and great faith has been placed in various drugs and measures by individual surgeons when applied to a certain class of cases.

Like in other diseased conditions, prophylaxis plays the most important role in treatment. Many of the above named complications and accidents

could be prevented, no doubt, by careful and proper preparation of the patient for the operation. Equally careful investigation for the purpose of detecting pre-existing conditions which may contraindicate operative procedures is also very essential.

There would be fewer complications following operations, I feel sure, if the above precautions were carried out, as well as by the observance of more care in the administration of the anesthetic and the selection of the most appropriate one in the individual case. The isjurious elements that subject the patient to complications while unconscious from the anesthetic play their part in producing serious postoperative sequelæ.

10-11 Morrison Block.

### A CASE OF HYDATIDIFORM CYST.

By E. RODNEY FISKE, M.D., Brooklyn, N. Y.

The oldest statistics gathered by Madame Boivin of Paris made this disease a very rare one, being one in twenty thousand. Edgar has seen four cases in fifteen thousand, Williams one in about twenty-four hundred; these probably being the most accurate statistics. This condition occurs more frequently in multiparæ and develops in the first four months of pregnancy. The period of its inception determines the vitality of the fetus, for if it occurs in the earliest part of gestation the fetus is devitalized and may entirely disappear through absorption. If, however, it occurs at a later period, there may be a full term pregnancy, but in any case the vitality and integrity of the fetus are severely affected.

The disease was first described in 1565 by Schenck von Grafenburg, but was mentioned as early as the beginning of the sixth century by Aetius of Amida. The early authorities believed the cysts to be mature ova, and hence the stories of extraordinary multiple gestation such as that of the Countess Hyenau, with a record of three hundred and sixty-five embryos at a single labor.

Velpeau and Madame Boivin first discovered the true nature of these cysts in 1827, when it was found to be a disease of the chorion. Virchow in 1853 stated that it was a myxomatous degeneration of the chorionic villi. In 1895 Marchand proved it to be a change in the epithelia and not in the stroma. Both the syncytium and the Langhan's layer of epithelia undergo profuse and irregular proliferation, penetrating Nitabuch's fibrin layer and the decidua. The process may extend into the uterine muscle. The bloodvessels of the terminal villi disappear and the stroma degenerates.

The translucent vesicles formed in immense num-

bers are filled with a fluid resembling the liquor amnii; they vary in size from a pin's head to a plum and have the appearance of boiled tapioca.

The mass may cover the whole area of the uterine cavity or only the placental site, the former when the disease occurs in the early months, the latter if the mole does not develop until after the placenta. In the first instance we have no fetus, in the second a fetus is possible.

There is a possible relation of this disease to deciduoma malignum, which results from a malignant proliferation of the epithelial elements of the chorion, and this connection is probably dependent upon the completeness with which the proliferating epithelia penetrate the stroma of the chorion.

Incomplete expulsion of the mole may also develop a secondary deciduoma malignum.

**Etiology.**—The cause is unknown, but probably the disease originates in the ovum and not the endometrium. A rare case of twin pregnancy with one normal fetus and one mole would indicate this origin.

**Diagnosis.**—This can be positively made only by palpation of the cysts during a hemorrhage, with cervical dilatation.

Cases of true hydatid cysts of the liver with peritoneal extension and rupture of the cul-de-sac are very rare and they show the typical hooklets of the echinococcus.

The excessive size of the uterus, and when hemorrhage has occurred, its so-called currant juice character help to make the diagnosis.

**Symptoms.**—At first there are no characteristic changes beyond the usual signs of pregnancy, but later there are three characteristic signs:—

1. An unusual uterine enlargement, far greater than the period suggesting hydramnios;
2. Hemorrhage of an irregular character, small to profuse, with watery, dark reddish bloody discharge of a peculiar odor; in my case, of a pungent character.
3. A doughy feeling of the uterus with no definite outlines of the fetus and no fetal heart sounds.

The hemorrhage may be frequent and profuse and one may be fatal. The cysts soon appear.

There is also excessive nausea, vomiting, faintness, syncope, extreme exhaustion and pain, with renal insufficiency and albuminuria. The disease may involve the uterine wall and assume a semi-malignant character.

**Prognosis.**—The outcome of the disease is a termination of the pregnancy in the fourth or fifth month, usually with a dead or destroyed fetus. The maternal mortality is thirteen per cent., due to hem-

orrhage, sepsis or perforation. It is a serious affection in any light.

**Treatment.**—The treatment indicated is immediate emptying of the uterus as soon as the diagnosis is made.

#### CASE REPORT.

Mrs. H., aged thirty-four, primipara, presented herself with a history of pregnancy, January 26, 1911; at that time she complained of nausea, the period being the end of the second month. The nausea became more and more severe and was attended with vomiting, and was soon followed by marked anemia and an increasing anasarca. The patient called attention to her unusual size, but nothing was suspected at the time. All her symptoms increased in severity, and there were present marked albuminuria with general dropsy, great prostration, dyspnea and continued vomiting. The urinary examination showed no evidences of a parenchymatous nephritis.

Concluding that I had a nephritic toxemia to deal with, the patient was kept in bed and put on a milk diet with some improvement of her symptoms.

Slight uterine hemorrhage of a few hours' duration appeared, and on March 29, 1911, a severe hemorrhage occurred. An absolute prone position was now enforced without results. Vaginal examination showed no uterine contractions nor any dilatation. There were no uterine pains on this day. The uterus was unusually large and doughy, extending at this period—the middle of the fifth month—above the umbilicus.

The following morning the patient had renewed hemorrhage and pains developed. The clots passed for the first time showed a mass of typical hydatidiform vesicles. The patient was removed at once to the hospital with a diagnosis of hydatidiform mole.

The uterus was emptied after protracted curettage with much hemorrhage, and the procedure was satisfactorily completed, with the patient in fair condition. Having left the operating room, I was hurriedly called back to find her in collapse and shock from which she died in thirty minutes despite all efforts.

1172 Dean street.

**Removal of the Testes for Tuberculosis.**—According to N. Federici, cited in *Wiener klin. Wochens.*, No. 17, 1912, operative intervention is justified in tuberculous orchitis and epididymitis if suppuration or caseation has occurred with high fever and marked pain. The operation should be resorted to even when tuberculous lesions are present within the abdomen.

## THE DRAINAGE OF ABDOMINAL WOUNDS.\*

By FRANK HENRY KNIGHT, M.D., Brooklyn, N. Y.  
*Associate Visiting Surgeon to St. John's and Swedish  
Hospitals; Chief of Gynecological Clinic,  
Methodist Episcopal Hospital.*

The frequent immediate closure of abdominal wounds and the bold and daring manner with which certain operators neglect to drain many acutely affected peritoneal cavities has led me of late to give the subject of drainage very serious thought, and, therefore, I desire to present it to you for discussion.

The natural method of drainage is through the lymphatics, which may be very materially assisted by the posture of the patient, either the Clark position or its reverse, the Fowler position.

Much discussion took place at our last meeting regarding the pros and cons of the two positions relative to the avoidance of postoperative adhesions and thereby minimizing the danger of intestinal obstruction. Little mention, however, was made of their respective values in regard to drainage. The upper and diaphragmatic region of the peritoneal cavity being so richly supplied with lymphatics has by far the greater absorptive power. Therefore, Clark's theory was quite correct, but clinically far from practical in cases of infection; for it is obvious that not only are the toxins permitted to be absorbed with overwhelming rapidity, but other products of inflammation are gravitated to the upper abdomen, where circumscribed areas of inflammation may become localized and break down into pockets of pus in localities difficult to evacuate and drain. On the other hand, the pelvis, with the patient in the Fowler position, is a quite convenient place to conduct our drainage. Here we can much more readily localize septic material, there is less systemic absorption and artificial drainage is easy.

It is obvious, therefore, from the foregoing, that the Clark position is decidedly undesirable in the drainage of abdominal infections. The Fowler position is decidedly of advantage in cases where free septic material may be localized in a place easy of access. The dorsal position is used in all cases of localized infection and for infections in the upper abdomen.

The method of drainage employed by most surgeons is either by the glass or rubber tube or the cigarette drain. These are frequently far from adequate, and the tube occasionally harmful. It will be seen that as soon as the tissues fall together about the

lower end of a tube, it is either blocked or a very limited area is given drainage. The same applies to the cigarette drain, for although there may be free absorption from its lower end, the remaining portion is sealed by the rubber and so the full capacity of the drain is handicapped.

The pressure of a glass tube or the lower end of a rubber tube may cause ulceration and fistula, for it has been found at autopsy that the lower end of a rubber tube ulcerated directly through the cecal wall. The slight advantage of easy removal of these rubber tubes is far overbalanced by their incomplete drainage and other dangers.

The old-fashioned wick, without any armor, seems to have been quite lost sight of by many of us in the rush for something new. The plain wick drain came to be discarded because of the unfortunate results in former days with infected peritoneal cases, but it would be a safe wager that the improved results came more from better technic and less meddlesome surgery than from the tube or cigarette drain.

I have appended here a summary of the infective peritoneal conditions which have come into our service at St. John's Hospital during the past year, 1911:

- 5 cases of acute diffuse suppurative peritonitis.
- 3 cases of acute circumscribed suppurative peritonitis.
- 8 cases of gangrenous appendicitis, with septic infection of the peritoneum (unruptured).
- 3 cases of gangrenous appendicitis with septic infection of the peritoneum (ruptured).
- 6 cases of pelvic cellulitis.
- 5 cases of acute suppurative salpingitis with general pelvic peritonitis.
- 3 cases of chronic suppurative salpingitis with general pelvic peritonitis.

Total number of cases, 33.

*Treatment.*—All infective peritoneal cases are drained for a varying period dependent upon the condition at hand.

The wick drain in the form of iodoform gauze is used exclusively.

If the infection is low in the pelvis and indications of a walled-off condition are present, then drainage is established through the vault of the vagina, the abscess cavity sponged dry, and loosely packed with iodoform gauze.

Where the infection is high in the pelvis, drainage is made through an abdominal opening, using a liberal quantity of iodoform gauze with which to wall off the intestines, and a direct drain to the structures involved.

\* Read before the Brooklyn Gynecological Society, January 5, 1912.

Diffuse septic peritonitis is drained by strips of iodoform gauze inserted in various directions, with a large loose strip passed in the tract of the infection. General irrigation of the peritoneal cavity is never employed, likewise counter-drainage.

Cases of gangrenous appendicitis, in which there is the slightest indication of peritoneal infection, are all drained by a small strip of iodoform gauze. It is in this class of cases that some surgeons take the greatest amount of chance and close the wound without drainage, on the ground that the infection is usually of B. colon variety and that the peritoneum will take care of it.

It is very true that a certain percentage of such cases get well without any further trouble, but when we consider that some of them do not recover, or have to be re-opened later, the slight inconvenience of a small drain for a few days is far safer and better judgment, and you will leave the operating room with your mind much more contented than by taking the risk of adopting a different plan.

In support of this method I refer you to the summary previously given of our infected peritoneal cases of 1911, which were thirty-three in all, and without any mortality.

The average length of time the initial drain remained in place was four days. At the end of that time it was removed, nitrous oxide usually being administered, and if there were still signs of infection, a fresh drain was inserted.

The Fowler position was used in all cases of acute pelvic infection and in acute diffuse septic peritonitis, except where the site of the infection was high in the abdomen; in such cases the horizontal position was maintained. All other cases were kept in the horizontal position.

The wound in all instances but one was healed before the patient left the hospital, which on the average was in the fourth week.

59 Seventh avenue.

## Correspondence

Editor INTERNATIONAL JOURNAL OF SURGERY:

Some time ago I was talking to a powder maker about the manufacture of powder, and happened to remark that I could not understand why so many children acquired tetanus from wounds caused by the explosion of toy pistol caps, when it was positively known that the disease was caused by a germ most commonly found in rich soils and especially about manure heaps. He replied, "I did not know that tetanus was caused by a germ found about ma-

nure, but that being so, perhaps I can throw a little light on the subject. The explosive in the caps is very powerful, so that something must be added to the very small amount used in a cap to make bulk, and the best thing we have been able to find is powdered dried horse dung."

This makes the cause of tetanus resulting from these wounds quite plain to me. If something could be used in these caps that could first be subjected to a high degree of heat many lives might be saved. I did not know whether this fact was generally known or not, but it was news to me.

J. B. PELLET, Hamburg, N. J.

## Surgical Gleanings

**Tuberculous Osteitis of the Phalanges and Metacarpal Bones.**—Dr. K. Kennerknecht (*Münch. med. Wochensch.*, No. 10, 1912) prefers the conservative methods of treatment of this condition, which has been described also under the name of spina yentosa. Since four years he has made use of ointments of pyrogallol with excellent results in the more chronic cases. The affected parts are bathed daily for one-half hour in soap and water and the ointment then applied in 10 per cent. strength, gradually reduced to 5 per cent. and then 2 per cent. Early operative intervention for the removal of sequestra is inadvisable, since they become gradually absorbed under the above method of treatment.

**The Gauze-Ether Method.**—Professor M. von Brunn (*Wiener med. Wochensch.*, No. 17, 1912) calls attention to the fact that this method, which he regards as very simple, is still quite unknown in Germany. It consists in covering the face with a gauze compress of eight to twelve layers and sufficiently large to extend over the mouth, nose, chin, and cheeks. Upon this the ether is slowly dropped, and after about a minute another compress of the same size is placed over the first, and the ether then dropped on more rapidly. Anesthesia is thus induced within a short time without any suffocating feeling. The advantage of this method is that it may be adapted to the conditions present in the individual case by varying the thickness of the gauze layer and the amount of ether dropped on. In children and women fewer layers are required. It has been employed for about one and one-half years in the author's clinic, especially in adults, and in connection with the preliminary injection of pantopon and scopolamin has become the method of choice. The most important feature of this form of anesthesia is that the admixture of air with ether can be kept within certain limitations without any danger of overdosage. If the ether is thinly distributed over the entire compress there is no risk of too great cooling. Furthermore, the undermost layers of the gauze are not moist and cold, but actually become warm, and thus the ether is inhaled at the proper temperature.



## PUBLISHED

BY THE

## International Journal of Surgery Co.

FRANK C. LEWIS, M.D., Managing Editor.

100 William St.—Woodbridge Building.  
New York, N. Y., U. S. A.

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## Editorial Department

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NEW YORK, JULY 1912

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### THE X-RAY TREATMENT OF CLIMACTERIC HEMORRHAGES.

On several occasions we have called attention to the use of the Roentgen ray in the treatment of uterine fibroids and given reasons based upon personal observations for the belief that this method has great therapeutic possibilities. Recently a number of reports have appeared chiefly from German clinics, and it would seem that sufficient has now been accomplished to justify American gynecologists in taking a more active interest in this agent.

According to Albers-Schoenberg, Gauss, Kroenig, Graefenberg, Falk, Bordier, Titus, and others, the x-ray is capable not only of speedily controlling the metrorrhagia in cases of uterine fibromyomata, but also of effecting a considerable reduction in the size of the tumor and sometimes its almost complete disappearance. From observations made in the Clinic of Professor A. Doederlein in the last year and a half it appears that Roentgen therapy is to be regarded as an important auxiliary in gynecological work. Dr. F. Weber, who presents the report (*Münch. med. Wochenschrift*, No. 14, 1912), was particularly impressed with the efficiency of the ray in arresting true climacteric hemorrhages. He says that the fact that of forty-nine cases only one proved unamenable to its action is in itself strong evidence of the value of this method. Excluding one failure, seven cases in which the later

history was unknown, two which remained under treatment for only a short time, and eight still under observation, thirty patients were discharged cured, an equally good showing as to the permanency of the results. When it is considered that these cases were observed in a prominent gynecological clinic, that they were of marked severity, and that in most of them various other means had been employed without success, and hysterectomy seemed to be the only resource, there is no room for skepticisms. The effect was manifested in general as follows: In some of the women, chiefly those above forty-six years, complete amenorrhea resulted, while in those below this age menstruation either took place regularly, but not in its former profuseness, or slight hemorrhages recurred from time to time. Care was taken in all these cases to determine that no malignant process was the cause of the bleeding. As has been likewise noted in the x-ray treatment of uterine fibroids, the best results were achieved in women in the early or late climacteric period.

In spite of the adverse views of von Herff and some other observers, we believe that the time is fast approaching when the Roentgen ray will be accorded a definite place in gynecological therapeutics. To permit of a fair comparison with surgical measures this method must be employed by one who is thoroughly familiar with its technic and who has acquired the necessary experience to use it with discrimination.

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### A NEW REFLEX SYMPTOM OF PROSTATITIS.

In his classical work Professor Osler states that "Neurasthenia is a disease above all others which has to be diagnosed from the subjective statements of the patient and from an observation of his general behavior rather than from the physical examination. The physical examination is of the highest importance in excluding other diseases likely to be confounded with it."

Unfortunately, in many instances the subjective condition is allowed to sway the physician's judgment and the search for a possible organic cause is omitted. The very vagueness of the symptoms presented by these patients conduces to diagnostic errors. In cases of so-called sexual neurasthenia a thorough examination of the genitourinary tract will often disclose disease of the prostate and thus serve as a basis for rational treatment. The writer recalls the case of a young man of neurasthenic type, who complained of an intense itching on the

top of the head during urination, and was fully persuaded that his loss of hair was attributable to this. His prostate was found to be tender, soft and somewhat enlarged—the sequel of an attack of gonorrhea several years before—and under appropriate local treatment there was speedy relief of his mental disturbance. There seems, indeed, no limit to the diversity of reflex phenomena resulting from prostatic disease in these neurotic individuals. In an article entitled “Cephalalgia Associated with Coitus, a Reflex Phenomenon of Chronic Prostatitis,” Dr. A. L. Wolbarst (*American Practitioner*, May, 1912) adds another symptom not hitherto described to the list. This author has observed three cases within the past year in which a chronically inflamed and congested prostate appeared to be the cause of excruciating headaches during or immediately after the act of intercourse. It is noteworthy that the patients were not subject to them at other times, that they did not follow involuntary seminal emissions, and were greatly relieved by local treatment to the prostate and colliculus.

In view of the intimate relation of the prostate to the sexual life it is not surprising that chronic inflammations of this gland or of other structures in the deep urethra may give rise to symptoms of a neurasthenic character in persons with an unstable or exhausted nervous system. Whatever theory be invoked to explain the etiology of these reflex phenomena, the practical fact remains that such cases are far from infrequent and demand earnest consideration, both from a diagnostic and therapeutic standpoint.

### GERMAN APPRECIATION OF AMERICAN MEDICAL PROGRESS.

We are in receipt of a letter from the Deutsches Zentralkomitee für Aerztliche Studienreisen announcing another tour of German physicians in this country for study and observation. The day of departure from Hamburg is set for September 7th, and we are informed that only four vacancies remain. Nothing is more gratifying than to note this awakening of ultra-scientific Germany to the possibilities of acquiring valuable knowledge in medicine and surgery by visits to our clinics and hospitals. It is not so long ago that America medically was a *terra incognita*; nowadays our prominent surgeons are well known, their methods have been extensively adopted, and their ingenuity and progressiveness are universally recognized. Exchange

professorships between the academic departments of German and American universities have proved a brilliant success. Why not extend this policy to the medical departments? Or better still, why not make it international? Much is to be gained by such exchanges and mankind will be the beneficiary.

### RECTAL HINTS.

By JEROME WAGNER, M.D., New York.

Examine your patient's rectum with finger and proctoscope. You will be surprised to find how often you will discover unsuspected conditions. Use a finger cot or rubber glove, well lubricated.

You will find it easy to insert a proctoscope if the patient is on his knees, resting his left shoulder on the table, as near his knees as possible. This throws the buttocks well up. Have the obturator in the proctoscope. Lubricate the tip freely with petrolatum and insert very gently, first with a slight tilt down, then gradually upward. Have plenty of light to illuminate the interior. An electric head lamp is very satisfactory if you have no electrically lighted proctoscope.

If possible have the patient take a saline the night before examination. If at the time of examination fecal material is present, wash it away with irrigation. Do not attempt to examine with the rectum filled.

When with the finger in the rectum you palpate a prostate, be sure it is the prostate.

A minute history is essential. If constipation exists, ascertain its duration and severity; if diarrhea be present, the number of diurnal and nocturnal movements, also their character.

In diarrheas it is well to find out if your patient has ever been in the tropics. Amebic dysentery is more common than one would suppose. After examining such a case, wash your hands in alcohol.

Remember that it is possible to penetrate the peritoneum through the rectal wall. Should this accident happen, don't trust to expectant treatment. It is always disastrous.

By far the best local anesthetic to use in operations on and about the rectum is a one-fifth of one per cent. solution of cocain. This enables one to use fairly large quantities with no danger to the patient. Always have the solution freshly prepared. The number of rectal operations that can be performed under cocain is limited. External hemorrhoids, mixed hemorrhoids (those partially exter-

nal and partially internal), thrombotic hemorrhoids, blind fistulæ opening into rectum near the external sphincter, and occasionally ischio-rectal abscesses, may be operated upon under local anesthesia. Polypi can also be removed under cocain anesthesia or a section taken for pathological examination. For all other rectal conditions local anesthesia is to be avoided.

Whenever you see pus coming from the rectum, do not forget the possibility of gonorrheal proctitis. It is not an uncommon condition.

Patients with *tabes dorsalis* should not be operated upon for hemorrhoids.

The ideal treatment of hemorrhoids is extirpation with clamp and cautery. Give the patient a cathartic two days before operation and keep him on a light diet. The night before and the morning of the operation, give 2 per cent. hydrogen peroxide enemas. Use a general anesthetic if possible. The clamp and cautery can be employed with local anesthesia, but this is not advisable. Insert the rectal tube. The second night after operation inject olive oil through the rectal tube and give the patient a dose of castor oil. The following morning the tube comes away. Follow the bowel movement with 2 per cent. hydrogen peroxide irrigation.

The ligature method is to be used on those hemorrhoids which have a pedicle and are readily accessible.

Use the cautery to open a tubercular fistula. If a knife is used it means opening up the lymph channels and the possible entry of tubercle bacilli into the blood stream from the fistulous tract.

Prolapse of the rectum is not uncommon in children. Searing the prolapsed mucous membrane with the cautery, followed by reduction, is a simple and efficient procedure and frequently results in a permanent cure.

Be suspicious of carcinoma when you obtain the following history in a patient over thirty-five: Diarrhea for the past months, preceded by a short period of constipation. The diarrhea at first is limited to the day; later the patient awakens at night with an intense desire to empty the bowels. He rushes to stool only to find that he is unable to pass anything but a little blood. This recurs four or five times each night and more frequently during the day. Loss in weight may be only slight.

A "sentinel" pile is a skin tab situated on the anus posteriorly, and always means fissure. Abscess and fistula follow a neglected fissure.

## Department of Railway Surgery

### OFFICIAL ORGAN

THE ASSOCIATION OF SURGEONS OF THE SOUTHERN RAILWAY.  
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ASSOCIATION OF SURGEONS OF THE SEABOARD AIR LINE RAILWAY.

### SAFETY DEVICES AND RESULTING BENEFITS.\*

By R. H. NEWBERN, ESQ.

Industrial safety depends primarily upon the introduction of efficient, practical devices to safeguard workers while engaged in their employment. We are to-day living in an age of prevention, an age in which advanced scientific effort is being directed to the removal of the great underlying waste in both human life and human efficiency. In this work the medical profession is bearing an important and conspicuous part, not alone in the discovery of causes and better methods of treatment of disease, but in the organized effort of forwarding reforms of a public or semi-public character for improved sanitation and in promoting a better understanding of the principles of personal hygiene.

Prevention as a means of conserving human life is not confined to immunity from disease nor to considerations of health alone, as statistics show that a large and increasing number of fatalities and injuries are due to occupational risks and dangers of which 60 per cent. or more are preventable. The Pennsylvania Railroad Company has been ever mindful of the welfare of its employees in a broad humanitarian way, and to make more effective the work of protection, the safety work has been organized and systematic methods initiated on all the Pennsylvania's lines through the medium of safety committees which have been organized on each division; in addition to a system of shop inspection for safeguarding machinery and improving shop practices and methods.

In the fall of 1910, in order to ascertain to what extent, if any, the company might be deficient in providing safeguards, experts of one of the large liability insurance companies were employed to report on conditions at two of the larger shops, one old and one new, it being thought that an outside, impartial inspection would show the true conditions. The results were such that it was decided to continue the inspection to include twenty-eight of the larger shop plants. In order that the company might be in a position to carry on the work on its own responsibility, a motive power inspector was

\*Address delivered at fifth annual meeting of Railway Surgeons' Association of Pennsylvania Lines East of Pittsburgh, June 1, 1912.

detailed to accompany the experts of the insurance company with the result that at the end of four months of active inspection work the railroad company had the benefit of the experience and information to enable it to continue the work without further outside assistance.

In comparison with the results obtained the cost of safeguards is not excessive. Since the inauguration of these inspections to January 1st of the present year, 66 shop plants on the system have been inspected employing over 50,000 men and safeguards provided for approximately 3,800 machines and tools, the cost being estimated at \$40,000. Most of the work has been done at the shops and standard safeguards have been devised wherever possible, the cost of which has usually been taken care of in the monthly allowance for repairs to machines and tools without asking for any special appropriation.

That the results thus far have been successful is shown in the comparison of fatalities and injuries during the month of February for the years 1911 and 1912, in which the number of shop employees killed has been reduced from 7 to 2 and the number of serious accidents from 252 to 107. These results are particularly encouraging when it is considered that the number of railway injuries reported to the Interstate Commerce Commission during the past ten years has shown a steady increase. The Pennsylvania Railroad Company's effort in this direction has won recognition in the award of a gold medal by the American Museum of Safety to the American employer who in 1911 did the most to protect the lives and limbs of its employees.

One of the important features in safety work has been the appointment of safety committees of employees covering all divisions and shops of the company. These committees, unlike the Committees of Safety in the stormy days of the French Revolution, instead of taking heads off aim rather to keep them on. The extent and importance of the safety work on the Pennsylvania Railroad will be better understood by the fact that there are now thirty-three committees actively engaged in inspecting and reporting on road, shop and yard conditions, with a total membership of 150 men.

It is recognized that the prevention of industrial accidents depends largely on the care exercised by the individual workman, and by serving on safety committees they become interested in precautions and will instinctively avoid many of the common and easily preventable dangers. In the early stages of the safety committee work monthly inspections were deemed desirable. They now make quarterly inspections and the term of service of members

covers nine months, committees comprising three to six members, depending on the size of the division or shop. When these were first organized there was a difference of opinion as to the character of the membership, which was determined by each superintendent of his respective division, and there is still considerable variation in the classes of men appointed, ranging from laborer to supervisor and master mechanic. As a rule, the chairman of the committee has not been lower than a foreman or someone in authority. In order that the majority of the members of each committee will be experienced and familiar with the work, the appointments are rotated, one or more members of each being dropped and replaced at stated intervals, usually three months; for this work members are paid full time and expenses, the monthly cost to the company being about \$2,750. In order to keep in close touch with the results accomplished by these committees, the Safety Inspector of the Insurance Department makes occasional visits to the divisions, personally inspecting those points where for any reason recommendations are questioned and securing the views of the operating officers in charge. The nature of every accident receives careful consideration, and wherever conditions warrant, the Safety Inspector makes a special investigation, a report of which is made to the General Manager, together with recommendations to prevent a recurrence.

An important feature of the work of safety committees is in passing on recommendations of the Safety Inspector in connection with shop conditions and practices; this has resulted in obtaining the viewpoint of various members of the committee and in encouraging them in offering additional recommendations for protection against shop hazards. An interesting development in connection with committee work has been in the willingness and aptitude shown by some of the men in lecture work, in giving short illustrated talks to their fellow employees on the general subject of safety and the importance of taking proper precaution. This feature is receiving the encouragement of the management.

A study of the reports of the various committees shows that they differ considerably in the character of recommendations and in their individuality; with some the recommendations refer chiefly to safety features in connection with train movements; with others to safety in mechanical operations; with others to construction and electrical hazards and road maintenance. This diversity has suggested the wisdom of enlarging committees on various divis-

ions which would result in an entirely different line of recommendations.

Since January 1, 1911, careful record has been kept of the reports of accidents in shops in which the serious accidents show a marked decrease from 300 to slightly over 100 per month.

mon and easily preventable causes due to carelessness or disregard of rules, thereby tending to develop the safety trend of mind; for the problem of safety is not altogether a question of safety appliances, nor of rules and their enforcement, but depends largely on the development of

#### INJURIES AND DEATHS COVERING ACCIDENTS TO SHOP EMPLOYEES, BY MONTHS, 1911-12.

	SERIOUS ACCIDENTS				Minor Injuries.	No Disability.	Grand Total.	Number of Shop Employees.	Serious Accidents per 1,000 Employees.
	Killed.	Fingers Crushed or Severed.	Severe Bruises.	Total.					
January, 1911 .....	4	39	254	297	731	(*)	1028	34,127	8.7
January, 1912 .....	4	9	98	111	954	384	1449	35,177	3.2
February, 1911 .....	7	57	188	252	739	(*)	991	34,171	7.3
February, 1912 .....	2	10	95	107	850	448	1405	35,800	3.0
March, 1911 .....	0	60	215	275	730	(*)	1005	32,899	8.3
March, 1912 .....	1	16	114	131	890	405	1426	36,151	3.6
April, 1911 .....	1	30	159	190	573	(*)	763	31,380	6.0
April, 1912 .....									
May, 1911 .....	3	46	227	276	663	150	1089	34,694	7.9
May, 1912 .....									
June, 1911 .....	1	27	152	180	728	114	1022	34,601	5.2
June, 1912 .....									
July, 1911 .....	2	17	132	151	604	303	1057	31,641	4.7
July, 1912 .....									
August, 1911 .....	2	20	88	110	717	367	1194	32,512	3.4
August, 1912 .....									
September, 1911 .....	0	15	92	107	701	420	1228	32,932	3.4
September, 1912 .....									
October, 1911 .....	0	16	86	102	686	430	1218	33,462	3.2
October, 1912 .....									
November, 1911 .....	2	16	102	120	695	287	1102	33,997	3.5
November, 1912 .....									
December, 1911 .....	2	10	105	117	825	308	1250	34,582	3.4
December, 1912 .....									

(\*) Accidents not resulting in disability included under minor injuries.

While this experience is gratifying, we feel that still greater results can be accomplished, especially on the road. The safeguarding of machinery and improvement of shop practices may be considered comparatively easy, although we feel that the work is only begun. In addition to providing safeguards for machines there are questions of sanitation and of individual hygiene, including proper lighting and ventilation and improvement in work surroundings, which are bound to result in better health and in greater efficiency.

On the road, safety work is directed toward the protection of passengers and others as well as employees through the elimination of what have heretofore been considered ordinary risks, including such features as protection for exposed culverts, increasing clearances between station platforms and tracks and nearby buildings, or other obstructions along right-of-way, improved lighting for car yards, stations and station platforms, in addition to securing a more careful enforcement of the book of rules insuring safer operation. Recognizing the necessity for educational work, quarterly bulletins are to be issued to all employees, emphasizing the necessity for caution and calling attention to the more com-

self-restraint and control on the part of the men. Contrary to the opinion often expressed, the introduction of safeguards, within reasonable limits, does not appreciably retard or diminish output. The increased confidence on the part of the men in the security afforded by safeguards will allow greater freedom of effort and ultimately will result in greater efficiency. We have individual cases of which reports have been made showing that more work is being gotten out on machines, due to the feeling of confidence which the men have in working around protected machinery, where otherwise there would be more or less danger.

Under the policy adopted by the Company during the past year, all tools and machines purchased are required to be fully protected by the manufacturer with all necessary guards to insure the maximum of safety in their operation. There are many cases where a safeguard has prevented an injury of which no report is made, while in many others of which we have direct knowledge the presence of the safeguard has resulted in preventing both injury and death, such as, for instance, a recent accident where the guard protecting an emery wheel, which burst while re-

volving at high speed, resulted in slight injuries to finger and hand, though the absence of the guard would have unquestionably caused the death of the operator. A report by a master mechanic of one of the large shops is interesting as showing the value of safety devices. In this he states, "we have decreased the number of accidents and added to the safety of our employees by applying these devices, although it is a very hard matter to tell what has been done, as the men make no report to their foreman when they would have been injured had there been no guard." In this same report five cases are specifically mentioned where death or serious injury would have resulted but for the presence of safeguards.

It is worthy of mention that, contrary to the general understanding, the great majority of injuries and fatalities to railroad employees are not due to the widely advertised train accidents but to frequent repetition of every-day minor accidents.

Closely allied with industrial safety are various welfare features which are supported or maintained by the railroad company. While the development of welfare work has not up to this time been the result of concerted effort, many agencies have been provided, including Young Men's Christian Associations with their educational work and provision for meals and lodgings at reduced rates and apprentice schools with free tuition, including payment for time while in attendance. There might also be mentioned recreation features, such as athletic grounds, club rooms, shower baths, modern sanitary arrangements at the principal shops; to these could be added the voluntary relief and the furnishing of free medical attendance to employees, also first aid and emergency hospital service; as well as the pension scheme, which was first inaugurated by the Pennsylvania Railroad Company, and relief allowances for sickness and injury. While not all has been done in this line that may be accomplished later on, the welfare work is being studied with a view to its development and to affording employees the opportunity for wholesome recreation and diversion.

With the interest now evidenced in safety and welfare work by the large corporations, including the pioneer work of the United States Steel Corporation, which has expended one and three quarters millions of dollars for this work alone during the years, 1911 and 1912, it is not unreasonable to hope that the near future will show

a marked reduction in fatalities and injuries in practically all lines of industry.

Safety work should be of great interest to gentlemen of your profession as railway surgeons both as regards the causes producing injuries and fatalities and the extent of the disabilities and injuries resulting therefrom, and it is believed that many opportunities are afforded you to make valuable suggestions as a result of treating injured persons which would tend to make more effective the work of safeguarding employees, and any suggestions of this character will be gladly welcomed.

### GENERAL PARESIS AND THE IMPORTANCE OF ITS EARLY DIAGNOSIS TO THE RAILWAY SURGEON.\*

By J. H. TAYLOR, M.D., Columbia, S. C.

Possibly without exception there is no disease in which a failure to make an early diagnosis is fraught with such manifest dangers, and in no calling is the risk to others so great as in that of the railway employee upon whose scrupulous care and constant attentiveness so much depends.

As Kraft-Ebbing so strikingly expresses it, a disease of "civilization and syphilization," paresis manifests itself in the vigorous prime of life, and is so vague and protean in its early symptoms that, as a rule, they are recognized as the beginnings of this condition when viewed in retrospect rather than at the time of their occurrence.

In this paper we shall consider only the prodromal symptoms, for herein lies the crux of the situation for the railway surgeon. After the wreck has occurred and the loss of life and property been counted, the diagnosis has then lost its importance, and, moreover, the novice could then see wherein lay the secret of the disregarded orders.

The first vague outcroppings come perhaps as a gradual change in character. Where a man has been constantly kind and considerate to his wife and children he becomes irritable, impatient and perhaps cruel.

Then again there gradually develops a beginning failure on the part of the patient to continuously apply himself to his work, memory is not so good, and business engagements are forgotten or disregarded. Associated with this, of course, goes a gradual loss of the sense of responsibility, and, as bearing on this particular phase, I have in mind the case of an engineer on the Columbia Division

\*Read at seventh annual meeting of Association of Surgeons of Southern Railway, held at Washington, D. C., June 11-12, 1912.

whose first overt act was the stopping of a fast passenger train at a farm house to purchase eggs. Here you will note that loss of the sense of responsibility strikingly illustrated, and I would say further that this man eventually developed a typical paresis and died in the State Hospital for the Insane.

Another parietic will show a gradual loss of judgment, a quality held at a high premium in the man at the throttle. The B. & O. R. R. some years ago was financially wrecked by the development of this abnormal judgment in its president as the beginnings of general paresis. He later died with the disease fully developed but diagnosed too late to prevent the financial crash.

The morale of the patient, on the other hand, may first undergo marked alteration for the worse. Where formerly abstemious as to alcohol, he will go to excess in drinking. Where formerly his associates were chosen from the gentility, these may now be deserted for those of the lowest type. The appearance of the patient, too, may give us an inkling of the beginning mental reduction. He develops a carelessness as to his personal appearance, leaves his clothes unbuttoned, forgets to put on his tie, and in various other ways gives indication of a deterioration that eventually shows the classical, physical and mental symptoms of general paresis.

Perhaps at this early stage, too, may be elicited by a careful examination the beginnings of those speech defects which later become so characteristic, a slight hesitation and occasional almost unnoticeable defect in a single word. The pupils may show a sluggish reaction to light, and be unequal in size. Later develop the tremor, the oculomotor and tendon reflex disturbances, the mental delusions and other symptoms that go to make up the complete picture.

The far reaching perplexities and complexities that sometimes arise in dealing with the early stages of paresis may be brought out by citing a case somewhat in detail.

In the fall of 1904 a local railway surgeon was requested by the division superintendent to look into the case of an engineer who had been reported as acting strangely on his run. Upon inquiry it was found that he frequently ran his train beyond stations before stopping, and did other things that "queered him" with his colored fireman. As the engineer appeared to be sane and talked and acted rationally the condition proved very puzzling to the doctor, and, furthermore, as the man was running a fast express train, he finally decided to divide the responsibility by calling in consultation an alienist, through whose courtesy I report this case.

He was a married man of the robust type common to engineers. Careful inquiry disclosed the history of a brief attack of unconsciousness while on a picnic a few months previously. He was carried home and kept in bed for several days, but admitted no further ill consequences. He was not alcoholic and denied syphilis, although a prolonged visit to Hot Springs because of "rheumatism" was admitted. (This was before the days of the Wassermann test.) Upon examination his pupils were found somewhat contracted, unequal and inactive. His knee jerks were abolished, and there was tremor of the lingual and facial muscles. He was slow of speech, but this was said to be natural. He declared himself to be perfectly well and protested against the doctor's interference with his work. In view of the above findings, however, the two physicians signed a certificate stating that paresis was suspected and recommended that the engineer be relieved of his work. Upon the receipt of this certificate at headquarters the patient was taken from his run against both his protest and that of his father, an old engineer on the same road, and, moreover, an appeal was made for his reinstatement by the authorities because of the alleged error on the part of the doctors and the injustice of their certificate. At this juncture two local general practitioners examined the case and were induced to give certificate to the effect that the patient was sound in mind and body and thoroughly capable of running his engine with safety to all interests. The asylum doctor, still persistently refusing to modify his opinion, appeal was made to the engineers' brotherhood, and there is reason to suspect that the attention of the governor of the State was directed to the obstinacy and incompetency of the asylum physician, but the governor sensibly declined to interfere. Later the local surgeon under pressure agreed to withdraw the disability certificate if the asylum physician would do the same. The alienist, however, took the position that if after twenty years of professional work he knew any one disease thoroughly that was paresis, and he therefore steadfastly refused to stultify himself by changing his medical opinion. This refusal proving embarrassing to the authorities, the patient was sent to the chief surgeon for examination, and he being in doubt took him to an asylum superintendent in another State. This very competent physician claimed to find nothing in the case suggesting paresis, and although also in doubt I believe gave a certificate to that effect. The chief surgeon then visited the first asylum physician to explain the embarrassment and difficulties his certificate was causing the officials of the road and asked for



its withdrawal, but the request was refused unless the patient should develop no further symptoms within a year from its date.

We come now to further interesting developments. The engineer having been re-employed was handling traffic on a spur track to a brick-yard near the city and ran his engine carelessly into a car loaded with brick, doing much damage, and because of this accident his position was taken from him. Very soon his suspicious conduct towards his wife was such that she appealed to his brotherhood for protection, and when application was finally made for his commitment to the asylum the physician suggested that the papers be signed by the chief officer of the brotherhood from which source had emanated most of the trouble. Upon his admission on June 12, 1905, the following appears under the physician's certificate of commitment:

"He talked in a very foolish and irrational manner, that is, when he talked at all. He was disinclined to talk, however, and never said anything except when spoken to. He did nothing except to sit around and try to go to sleep. He was rather dull and stupid most of the time. He is in good physical condition, but appears mentally deranged. He has hallucinations; at times does not know different members of his family or his own home. At one time he struck his wife. He says he is all right, but acts in a most irrational and erratic manner at times."

The following history was obtained on admission to the hospital. Age 39, married, with one child of seventeen years. Both parents living and a negative family history as regards insanity. He appeared depressed and was somewhat quarrelsome, forgetful and superstitious. He claimed to have bugs on him and wanted to shoot them. His bodily health was good and the cause of his trouble was said to be unknown, though the family admitted that he had had an attack of paralysis about one year previous, and his symptoms were said to be increasing.

Physical examination: Height five feet, seven inches, weight 245 lbs., strong and well nourished. He showed the classical symptoms of the paretic. His father, however, was still unwilling to accept the diagnosis and removed him from the hospital against advice on July 25, 1905, but the patient soon becoming unmanageable was returned on August 20th, 1905. This was followed by the usual downward course characteristic of the disease in this stage. After several attacks of unconsciousness at varying intervals he became thoroughly demented, was un-

tidy in his habits, had an increasing antipathy for his wife and, finally becoming bed-ridden, died suddenly on February 14, 1912.

Now there are several object lessons in this history that cannot be passed over without due emphasis. A most thorough investigation should be made by railway officials and surgeons in the case of an employee showing a change of character, coupled with a history of a fainting attack or a fit and a loss of skill or technique or of the powers of attention. In the light of our advances along the positive diagnosis of syphilis, the essential cause of paresis, a case of this type should be subjected to a rigid Wassermann test of both blood and spinal fluid, and moreover a differential cell count of the spinal fluid should be made for lymphocytosis. If a positive reaction be obtained the employee should be relieved of the duties of trust and responsibility at once and placed under conditions conducive to careful study, observation and treatment. The long duration of this case, eight years, when the average is two to three years, is probably explained by the out-of-doors life the patient necessarily led in his profession. While well-established paresis is probably incurable, yet some writers, notably Dana, hold that in its early stages the disease may be cured or held in abeyance by proper treatment, and of course this is anti-syphilitic.

### LITTLE VERSUS MUCH TECHNIC AND APPARATUS IN BONE SURGERY.\*

By D. W. KINGSBURY, M.D., Nanticoke, Pa.

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This paper is written from the practical and conservative side of the subject, and has to do with bone surgery as met with in mining towns by the general practitioner. Mine surgery as well as railroad surgery has certain features and environments, which distinguish it from the same class of work in other occupations.

The surgeons located in the mining towns of Pennsylvania are almost daily called upon to treat some of the worst cases of compound and compound comminuted fractures that are met anywhere, and that they have been successfully managed can be verified by visiting the coal mines and breakers and noting the results. There is probably no calling in which more accidents occur in proportion to the number of persons employed than in the coal mines.

\* Read at fifth annual meeting of Railway Surgeons' Association of Pennsylvania Lines East of Pittsburgh, May 31, June 1, 1912.

Yet very few reports of this work ever find their way into our medical journals.

The subject of bone surgery is so large and has lately called forth such excellent contributions from some of our best observers, that it would be useless to attempt to add anything of real merit in a fifteen minute paper, no difference how well qualified the writer might be to do so. I have therefore thought best to illustrate my subject by reporting a case in my own practice of a boy who had been severely injured by a loaded mine car and was treated in the simplest manner possible without any special apparatus, but with satisfactory results, and to compare it with a similar case reported by Dr. George A. Skinner, Major of Medical Corps, U. S. Army, at Fort D. A. Russell, Wyoming, in the *Journal of the A. M. A.*, Dec. 16, 1911, in which the most elaborate apparatus and technic were employed, this case also terminating in good recovery.

About 9.30 a. m. on July 15, 1902, I was hastily summoned to see a boy, fifteen years of age, who was said to have been severely injured and was then on his way home. The patient, who had been employed as a door boy, had been caught by a runaway car and dragged along the rails for some distance, his left arm being run over by the loaded car.

On examination I found the forearm badly lacerated, but both bones intact. The arm about midway from the elbow to the shoulder had been passed over by a car wheel, and about three inches of the bone crushed into small pieces. The triceps and long head of the bicep had been crushed and torn across, and the attachments of the deltoid and most of the scapular muscles cut away. The short head of the biceps and inner or anterior soft parts as well as the brachial artery and nerve and large veins had escaped injury from the fact that the car wheel had glided over them by coming in contact with a piece of wood or iron on the rail after it had crushed the humerus.

The hemorrhage was controlled and the wound temporarily dressed with sterile iodoform gauze. The patient was given a hypodermic injection of morphia and otherwise made as comfortable as possible and allowed to recover from the shock. I left the case at 11 a. m. and returned at 2 p. m. in company with Dr. D. H. Davis of our own town, a man who has had a wide experience in mine surgery. The boy by this time had recovered from the shock and was in fairly good condition for operation. We removed the temporary dressing, and after careful examination decided to make an effort to save the arm, although the prospects did not look bright. Our operating room was a miner's

kitchen and not a well-equipped hospital, as in the case that I intend to compare with this one. We brought with us our sterile dressings and towels, also trays for sterilizing our instruments. The patient was placed upon an improvised operating table, and after being anesthetized the forearm was first dressed and heavily bandaged to facilitate handling it in our further work upon the arm above the elbow. After thoroughly cleansing the wound with hot water and removing all small pieces of wood, coal, loose bone, etc., with sterile instruments, we retracted the periosteum on both ends of the humerus and sawed the ends of the broken bone as near at right angles with the axis of the shaft of the bone as possible. We then trimmed off all uneven shreds of periosteum and sutured the remaining portion all the way around the bone, cut away all crushed fragments of muscle and brought the ends together as accurately as possible, using plenty of hot water at each step of the operation. I wish to emphasize the use of hot water in this class of work, where it is impossible otherwise to carry out a strictly aseptic technic. The operation was finished by suturing the skin with silkworm gut. The arm was then dressed and placed on a well padded, right angled, perforated metal splint, and a splint of the same material applied to the outside of the arm, which embraced the shoulder and extended down to the elbow. It was necessary to remove only this outer splint in dressing the wound.

The case made an uneventful recovery without infection and the young man has a useful limb at present, although yet nearly two inches shorter than that on the opposite side. He is employed by the same company as an engineer and says that he does not experience any inconvenience from the accident.

The case of Dr. Skinner that I will now relate to you, taken from the *Journal* for comparison, was a gunshot wound of the arm of a boy of about the same age as the one I treated. The soft parts were injured very much as in my case, and the humerus fractured at about the same point. It is, however, only the very elaborate technic or rather apparatus, used in retaining the bone in place that I wish to notice.

He says: "A piece of calf femur was obtained and turned true in a lathe so that it was about one inch greater in diameter than the broken humerus. This was then sawed in half, longitudinally, and the inside cleaned out with a file until it was about the same size as the humerus. In other words, a bone collar was prepared  $2\frac{1}{2}$  inches long and of a size to just fit around the broken bone. This was grooved at either end to keep the wire from slipping, and sev-

eral holes drilled in it to save time if they should be needed. Then several bone pegs were turned out about the size of the medullary canal, and a number of bone nails were prepared. The idea was to do a resection of the bone, put a medullary peg in the canal, cut a step out of each end of the bone, fix with bone nails, place the bone collar in position around the whole, and wire or nail it in position.

"The resection was made and the ends secured by two bone nails. After placing the bone peg, about two inches long, in the medullary canal, the bone collar was placed around the bone and securely wired in position by placing the wire around the collar in the groove mentioned. This resulted in fairly firm fixation; about two inches of shortening resulted."

Further on in his report the author admits that he had infection in the wound in a short time, and that it soon became necessary to remove the bone collar, medullary peg, nails, wire, etc., and place the arm in a cast.

The apparatus used in this case to keep the arm in place and for support was fully as extensive as that employed to retain the bone, and consisted of a plaster cast of the body from neck to hips, with straps and rods of iron and leather. It is not my intention in this comparison to discredit the employment, in properly selected cases, of bone plates, wire, nails, and bone grafts or implants, but to show that they are often used ineffectively and in cases where they are uncalled for and do positive harm.

Dr. John B. Murphy, of Chicago, in his able contribution to bone surgery printed in the *Journal of the A. M. A.*, April 6, 1912, lays down as one of the rules to be followed in bone grafting that "Periosteum and bone, transplanted into another individual or animal of the same species, and under the same conditions, rarely, if ever, produce permanent bone deposit, and transplanted into another species never produce permanent deposit, and that bone implants are not osteogenetic but simply osteoconductive, forming at best only a bridge for the conduction of bone growth, the implants being absorbed."

I have often used sterile catgut for the purpose of bridging over a gap between the ends of bones which could not for some cause be brought together, and have always thought that it was conducive of bone growth, although this would not accord with Dr. Murphy's teachings.

Dr. Skinner, however, does not say in his report, that he intended the medullary peg or bone collar for bone implants or grafts, and yet it is fair to infer from his article that it was his purpose to leave them permanently where he had placed them. But

whether they were intended for grafts or simply as apparatus to keep the bone in place, in my opinion they were both very much out of place and could only give him trouble and subject his patient to unnecessary risk.

A piece of calf bone turned to shape and placed in the medullary canal and a piece of the same material turned out and tightly wired around the humerus and over the periosteum could not possibly be conducive of bone repair.

If any appliance were needed more than was used in my case, a bone plate would have possibly served the purpose. It has always been my practice to employ the simplest device possible, and if one splint, bone-plate, wire, nail, etc., is sufficient, I do not use a second one.

The treatment of simply putting a fractured limb at rest for from one to four days and applying some cooling lotion, then giving an anesthetic, reducing the fracture and immediately applying a plaster cast, I have followed in hundreds of cases with gratifying results.

In following this course, it is necessary to have the full confidence of your patient, and it cannot be recommended to beginners. I consider Dr. Scudder's work on fractures and dislocations one of the best that the surgeon can follow in this class of injuries, and those of you who have consulted it know how little mention is made of any special apparatus and how much stress is put on knowing the action of the bones and muscles in the case you are treating. I have done so much bone surgery during the last thirty years without any special apparatus and with uniformly good results, and have lately seen so many cases treated, both in hospital and private practice, with bone-plates, nails, wire, etc., with so many infections, that I cannot but conclude that many of the cases would have done vastly better without their use. Bone-plates properly and aseptically applied in cases that cannot be successfully treated by simpler means certainly constitute the ideal method. The point I wish to bring out is that their use is not indicated in more than five per cent. of cases met in private practice and also that the aseptic feature of the operation is greatly underestimated by many surgeons attempting their use.

It is true, as Dr. Harris of Chicago says, that "The laity have been educated by the use of the x-ray to expect better bone surgery and better results than the old methods produced;" but if bone-plates occupy the place in surgery that they now seem to deserve, more care must be exercised in selecting the cases and in the technic.

Finally I would say, treat your cases of fracture

in the simplest manner possible. In compound fractures, if you find it necessary to wash the limb, protect the wound by a pad of sterile gauze held in place by a piece of rubber bandage, thus keeping any soapy and dirty water out of the wound. Flush the wound with sterile water, hot enough to blanch the tissues. Remove pieces of bone or foreign material with sterile instruments, and never, if it is possible to avoid it, put your fingers, even gloved fingers, into the wound. Reserve your bone plating for cases that cannot be treated by other and simpler means, and if possible send the patient to a hospital. After you have installed whatever treatment you think best in a case of fracture, do not neglect to watch the patient carefully until repair is well under way, and remember that eternal vigilance is the price of good results in bone surgery.

## Surgical Gleanings

**Foreign Bodies in the Abdominal Cavity.**—Dr. H. Hinterstoisser (*Wiener klin. Wochens.*, No. 16, 1912) reports a case in which after laparotomy for ectopic pregnancy the patient continued to suffer from abdominal symptoms and felt a mass in the abdomen. At the second operation the mass was found to consist of firmly adherent coils of small intestine. During the separation of the adhesions the intestine was perforated and a large twisted gauze compress impregnated with fecal matter was found, the greater part of it filling up the intestinal lumen, while the rest was surrounded by cicatricial and fibrous tissue. An extensive resection of the affected coil of intestine was performed, the patient recovering. Examination of the specimen removed showed that the compress had become encapsulated between the omentum and intestinal coils, and later had made its way into the neighboring intestine. Another case is reported in which after hysterectomy and salpingectomy for myomata the patient had a purulent vaginal secretion, with increase of temperature in the evening. Fifty-one days after operation a large offensive gauze compress was withdrawn with forceps from the wound in the vaginal vault, evidently having been left in the abdominal cavity during the laparotomy. In a study of the literature Hinterstoisser found a particularly large number of cases in which gauze compresses had been left in the abdominal cavity during operations for ectopic pregnancy. To avoid such accidents the surgeon should make haste slowly. For use in abdominal work tampons or compresses should be provided with a string or a clamp, while the number employed should be strictly supervised by the surgeon and his assistants. A large number of such compresses should always be on hand, so that there is never need of resorting to others. As to the fate of gauze compresses, in 5

cases collected from the literature they became encapsulated; in 6 entered the bladder; in 10 were passed by way of the vagina and in 18 by the rectum; in 22 perforated into the bowel; while in 25 they were discharged through an abscess of the abdominal wall.

**Surgical Treatment of Gastric and Duodenal Ulcers.**—Dr. J. Petren (*Beitr. z. klin. Chir.*, Bd. 76, Hft. 2) has made a special investigation of the remote results in 325 cases of ulcers of the stomach and duodenum treated chiefly by gastroenterostomy. In the 37 fatal cases death was due in the majority to pneumonia or peritonitis. More than one-half the patients whose subsequent history was known remained in fair condition for periods of two to twenty years, while the others complained of slight or more severe gastric disturbances. These were probably due in large part to recurrence of the ulcer or they resulted from adhesions and other obstructions to motility. Cancer of the stomach developed in about 5.5 per cent. of cases of ulcer treated by gastroenterostomy.

**Suture of the Sphincter Ani.**—Dr. M. Eschenbach (*Deut. med. Wochens.*, No. 16, 1912) states that fecal incontinence is quite apt to follow operations for pelviorectal, more rarely ischio-rectal fistulæ; it is still more common in cases of anal fissures from severe labors or excessive stretching of the sphincter. Incontinence may be due to solution of continuity of the internal sphincter alone, of the external sphincter in rare instances, or of both. Isolated injury of the internal sphincter is extremely rare. In three of five of the author's cases the incontinence followed incision of anal fistulæ or of pelviorectal abscesses, and in two, severe deliveries. The method of operation employed for the relief of this condition is very simple, although more difficult where there is a large amount of scar tissue. Under these circumstances it may not be easy to see the thin torn ends of the muscle. To find the stump of the internal sphincter and dissect it out, it is necessary to introduce the finger into the rectum and use it as a guide for the dissection. In all of the author's cases the internal sphincter had been reduced to one-third of its normal size. Owing to this thinness of the muscle and the tendency of the ends to separate wider, the sutures often tear out easily, although it is important to secure primary healing if possible. The chief object of the author's paper is to show the dangers of complete division of the sphincters, especially on account of the chance of injury to the internal sphincter.

**The Use of Camphorated Oil in Suture of Operation Wounds.**—Dr. Lampe (*Wiener klin. Wochens.*, No. 17, 1912), in an article read before the Congress of the German Surgical Society, April, 1912, recommended the application of camphorated oil before incision and during suture. His procedure is as follows: The skin over the operative field is cleansed with a pledget of cotton soaked in ether and then 2 per cent. sterile camph-

orated oil is rubbed in thoroughly. After the incision has been made to the desired depth the oil is poured in, any excess being wiped off. The same thing is done at the end of the operation before insertion of the sutures. Under this method of treatment it is claimed that healing takes place with scarcely any disturbance. While camphorated oil has but slight antibacterial properties, it is said to act like Peru balsam by enveloping the bacteria and also induces hyperemia, thereby stimulating resistance to bacterial activity.

**Fractures at the Elbow in Children.**—Dr. W. Campbell (*Am. Jour. Obst.*, Apr., 1912) points out that a child's elbow is not a miniature adult elbow, but is formed by epiphyses in the process of development. An exact knowledge of the development of the elbow is necessary to interpret the radiograph and reduce the fragments. As the child resists a local examination and the muscles are contracted, it is necessary to induce anesthesia just sufficient to relax the muscles and permit free palpation. The localization of ecchymosis should be noted. If it surrounds the elbow supracondylar fracture should be suspected; if it is localized—fracture of the condyles. In palpation the normal anatomical relations of the uninjured elbow should be noted. If the thumb and middle fingers be placed on the internal and external condyles and the index finger on the tip of the olecranon, then when the forearm is fully extended the three bony points lie in the same transverse line. Any modification of the normal relations of these three points is due to fracture or dislocation. The head of the radius can be felt in the dimple behind the elbow. Its rotation is manifest when the forearm is pronated and supinated. In injuries about the elbow the determination of the position of the radial head is of prime importance. The "carrying angle" of the two arms—the obtuse angle which the extended forearm forms with the arm should be compared; this angle is modified in certain fractures of the elbow. The movement of the elbow joint, both flexion and extension, should be noted; remembering that there is normally no lateral motion in the extended elbow-joint. Each fracture is a special problem with its individual needs and its peculiar indications, but the following precepts are considered a safe guide in all cases: 1.—A clinical examination under anesthesia is the first requisite, but it is never sufficient; it must be supplemented by an x-ray examination. The radiographs should be made and interpreted by a radiographer of experience. 2.—Reduce the fracture by such maneuvers as are efficient in accurately coapting the fragments. Care should be taken to avoid any rough manipulation which only exaggerates periosteal lesions and consequent impairment of function. Firmness and gentleness are always more effective. 3.—Immobilize permanently only when certain that reduction has been obtained, and that the position of the arm and the splint are adequate to maintain reduction. This will be evidenced by (a) normal conformation of the parts; (b) a normal range of flexion and extension; (c) the confirmation

of a second radiograph. The procedure should be as follows: After reduction has been obtained and the arm placed in that position which seemingly is most efficient in maintaining reduction, a temporary splint should be applied and a radiograph taken; if the picture confirms the accuracy of reduction and efficiency of immobilization, then the temporary splint should be made permanent. And no permanent immobilization should be attempted until satisfactory evidence has been obtained that the reduction, position of the arm, and splint are as perfect as the character of the injury permits.

**Preservation and Restoration of Tendon Function.**—Dr. W. L. Brown (*Tex. S. Jour. Medic.*, Apr., 1912), in an instructive paper on this subject, summarizes his views as follows: (1) Limbs should not be too long or too continuously immobilized in fractures, because of the danger to future tendon function. (2) Great caution should be used in making incisions for cellular tissue infections, to see that the tendon sheaths are not unnecessarily opened or the tendons severed by making reckless incisions without due regard to these structures. The permanent disability of many hands has been due as much to improper incising of abscesses as to the infection. (3) All recent wounds of tendons should be immediately repaired, and if surroundings are not such as to justify this procedure, they should be only temporarily dressed until such time as the tendons may be properly repaired. In the repair of every tendon, from either recent or old injury, the field should be rendered absolutely bloodless, and a careful dissection be made. In the repair of every tendon, whether recent or old injury, a new sheath should be provided in place of that destroyed, that the future function of the repaired tendon may not be reduced because of adhesions. (4) The most practical method for constructing a new sheath is to use subcutaneous areolar tissue. Cargyle membrane, sections of veins, etc., have been used, but not with satisfactory results. (5) In operating to restore function to tendons that have had old injuries or infection, all scar tissue should be carefully dissected away. (6) After all tendon repairs complete immobilization should be maintained for three weeks, then passive motion begun cautiously. Tendons have almost no blood supply, and consequently heal slowly. (7) Immobilization should be in the position which will give the tendon greatest relaxation. (8) In amputations at the wrist or ankle joints, or through the leg or forearm, in the presence of infection, all the larger tendon sheaths should be split open, the tendons pulled down and cut as high as possible, and the larger tendon sheaths drained through separate incisions, after they have been thoroughly swabbed out with tincture of iodine. (9) All elective operations on tendons should be preceded by a thorough study of the anatomy of the parts, then first performed on the cadaver, after which surface measurements are carefully made, in order that the dissection may be made with as little trauma to the tissues as possible.

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- Abduction of the Shoulder. An Interesting Observation in Connection with Subacromial Bursitis and Rupture of the Tendon of the Supraspinatus (Bost. M. and S. Jour., June 13, 1912). E. A. Codman, Boston.
- Acute Pancreatitis—Report of a Case of the Acute Hemorrhagic Type with Operation and Recovery (Col. Medic., June, 1912). C. E. Tennant, Denver.
- Adhesions of the Upper Abdomen (An. of Surg., June, 1912). R. T. Morris, New York.
- Amputation of the Thigh for Gangrene (Mo. Cyclop., June, 1912). J. H. Branth, New York.
- Aneurysm, the Surgical Treatment of (Lancet, May 25, 1912). H. G. Barling, Birmingham.
- Anterior Metatarsalgia and Morton's Disease (Bost. M. and S. Jour., June 13, 1912). A. M. Forbes, Montreal.
- Appendicitis, Early Diagnosis and Operation in (Brit. Med. Jour., May 25, 1912). J. H. Dauber, London.
- Appendicitis, the Influence of Age and Type of Patient upon the Course and Treatment of (Brit. Med. Jour., May 25, 1912). W. Billington, Birmingham.
- Appendicitis, the Operation for, Primary Closure of the Abdominal Wound (Brit. Med. Jour., May 25, 1912). J. G. Andrew, Glasgow.
- Appendicitis, Treatment of Acute. When and How to Operate (Lancet, May 11, 1912). Sir G. T. Beatson, Glasgow.
- Arteriovenous Anastomosis in Gangrene of the Lower Limbs, the Value of (An. of Surg., June, 1912). H. M. Davies, London.
- Atrophy of Muscle and Bone Resulting from Joint-Disease, Injury and Fixation (Jour. A. M. A., May 25, 1912). R. W. Lovett, Boston.
- Bile Ducts, Surgery of the (Am. Jour. Med. Sc., June, 1912). J. B. Deaver, Phila.
- Bleeding from the Genital Organs of Women, the Treatment of (Am. Jour. Surg., June, 1912). H. J. Boldt, New York.
- Chetwood Operation for Fecal Incontinence (Proctol., June, 1912). A. Newman, San Francisco.
- Chronic Intestinal Stasis (Brit. Med. Jour., May 4, 1912). W. A. Lane, London.
- Chronic Joint Diseases, Causes for Failures in the Treatment of, and Some Suggestions How Greater Successes Can be Attained (Bost. M. and S. Jour., May 23, 30, June 1, 1912). H. V. Marshall, Boston.
- Clinical Indications for Major Operations on the Temporal Bone and their Pathological Interpretation (Interst. Med. Jour., June, 1912). E. T. Senseney, L. K. Guggenheim, St. Louis.
- Club Feet, Recurrent (Lanc.-Clin., June 1, 1912). H. R. Allen, Indianapolis.
- Codivilla's Method of Lengthening the Lower Extremity (Surg., Gyn. and Obst., June, 1912). A. H. Freiberg, Cincinnati.
- Complete Operation for Suppurative Appendicitis (Lanc.-Clin., June 15, 1912). G. A. Hendon, Louisville.
- Congenital Absence of Cecum and Ascending Colon (An. of Surg., June, 1912). P. L. Mummery, London.
- Correlation and Distinction between Certain Symptoms in Some Abdominal Diseases, Based upon an Analysis of 124 Operations for Gastroduodenal Ulcer and 110 for Appendicitis (Brit. Med. Jour., May 4, 1912). E. S. Bishop, Manchester.
- Crypts and Columns of Morgagni; Their Relationship to Rectal Diseases (Am. Jour. Surg., June, 1912). J. P. Tuttle, New York.
- Cystoscopy in Gynecology and Obstetrics (Surg., Gyn. and Obst., June, 1912). G. B. Miller, Washington.
- Dilatation of the Prostatic Urethra for the Relief of Symptoms of Prostatic Enlargement (Therap. Gaz., June 15, 1912). E. H. Siter, Phila.
- Direct Traction in the Treatment of Fractures (Detr. Med. Jour., June, 1912). F. B. Walker, Detroit.
- Diverticulum of the Cecum (Med. Rec., May 25, 1912). J. F. Baldwin, Columbus, O.
- Drop Method of Administering Ether, with Special Reference to a New Combination Inhaler (N. Y. Med. Jour., June 1, 1912). H. A. Sanders, New York.
- End-Results of 66 Platings. Remarks on the Treatment of Fractures of the Long Bones (Jour. A. M. A., May 25, 1912). E. A. Babler, St. Louis.
- Epithelial New Growths of the Ovary, the Origin of (Surg., Gyn. and Obst., June, 1912). J. K. Goodall, Montreal.
- Etherization by the Drop Method, with Rebreathing and Concomitant Oxygenation (Lanc.-Clin., June 8, 1912). F. H. McMechan, Cincinnati.
- Exophthalmic Goitre, Surgical Treatment of (Med. Rec., May 25, 1912). M. B. Tinker, Ithaca, N. Y.
- Fractures, Observations on the Diagnosis and Treatment of (Chic. Med. Rec., June, 1912). S. C. Plummer, Chicago.
- Fracture of the Clavicle, Treatment of (Bost. M. and S. Jour., May 23, 1912). F. E. Peckham, Providence.
- Fractures of the Forearm, Treatment of. End Results of 52 Patients Treated Without Operation (Am. Jour. Med. Sc., June, 1912). A. P. C. Ashhurst, R. L. John, Phila.
- Fracture of the Greater Tuberosity of the Humerus by Muscular Action in a Child (Bost. M. and S. Jour., May 30, 1912). W. P. Coates, Boston.
- Fractures, Operative Treatment of. Report of 53 Cases in Which Lane Bone Plates and Screws were Employed (Jour. A. M. A., May 25, 1912). W. O'Neill Sherman, Pittsburgh.
- Fracture of the Radius Above the Attachment of the Pronator Quadratus Musc. (An. of Surg., June, 1912). E. G. Alexander, Phila.
- General Infection Following Acute Tonsillitis (An. of Surg., June, 1912). W. J. Taylor, Phila.
- Gonorrheal Arthritis: Methods of Diagnosis and Treatment (Med. Rec., May 25, 1912). G. K. Swinburne, New York.
- Gonorrheal Rheumatism, Management of (Med. Rec., June 15, 1912). E. Fuller, New York.
- Hastening of Wound Healing by Means of Skin Grafting and the Use of Certain Organic Coloring Matters (Bost. M. and S. Jour., June 8, 1912). J. S. Davis, Baltimore.
- Heliotherapy in Surgical Tuberculosis (Med. Rec., June 8, 1912). G. Austin, Paris, France.
- Hernia, Observations on the Radical Cure of (An. of Surg., June, 1912). C. F. Nassau, Phila.
- Hypophyseal Affections, the Operative Procedure in (Calif. S. Jour. Med., June, 1912). H. B. Graham, San Francisco.
- Indications for Abdominal Cesarean Section in Eclampsia (South. Med. Jour., June, 1912). J. F. Moran, Washington, D. C.
- Intracanalicular Papilloma of the Breast (Am. Jour. Surg., June, 1912). J. F. Erdmann, New York.
- Intractable Cardiospasm, the Operative Treatment of (Am. Jour. Surg., June, 1912). W. Meyer, New York.
- Iodine in Conservative Surgery of the Uterine Appendages (Va. Med. Semi-Mo., June 7, 1912). I. S. Stone, Washington, D. C.
- Malignant Disease of the Body of the Uterus, the Clinical Diagnosis of (Lancet, May 25, 1912). T. W. Eden, London.
- Massacre of the Tonsil (Maryl. Med. Jour., June, 1912). J. N. Mackenzie, Baltimore.
- Matas Band as a Test of the Collateral Circulation Through the Circle of Willis (South. Med. Jour., June, 1912). H. B. Gessner, New Orleans.
- Matas Band as a Test of the Collateral Circulation Through the Large Surgical Arteries (South. Med. Jour., June, 1912). C. W. Allen, New Orleans.
- Matas Test for the Efficiency of the Collateral Circulation in Aneurisms of the Extremities (South. Med. Jour., June, 1912). U. Maes, New Orleans.
- Membranous Pericentitis and Allied Conditions of the Ileocecal Region (Jour. Tenn. S. M. A., June, 1912). J. N. Jackson, Kansas City.
- Micrococci Catarrhalis as a Cause of Urethritis in the Male (Am. Jour. Dermat., June, 1912). W. Ayers, New York.
- Movable Kidney, Treatment of (Lanc.-Clin., May 25, 1912). W. Billington, Birmingham, Engl.
- Neurotic Element in Abdominal Surgery (Am. Jour. Surg., June, 1912). R. T. Morris, New York.
- Omentopexy in Cirrhosis of the Liver, a Report on the Procedure of (Interst. Med. Jour., June, 1912). H. H. Grant, Louisville.
- Perforations in Duodenal Ulcer (Buf. Med. Jour., June, 1912). E. R. McGuire, Buffalo.
- Perforation of Gastric or Duodenal Ulcers, the Late Results of Operations for (Surg., Gyn. and Obst., June, 1912). G. Petren, Lund, Sweden.
- Perforations of the Stomach and Duodenum, Cases of (Brit. Med. Jour., May 25, 1912). R. L. Spittel.
- Pituitary Body and Its Importance to the Surgeon (Northw. Medic., June, 1912). A. C. Behle, Salt Lake City.
- Postoperative Treatment Following Prostatectomy (Am. Jour. Urol., June, 1912). L. W. Bremerman, Chicago.
- Prevascular Femoral Hernia (An. of Surg., June, 1912). A. V. Moschowitz, New York.
- Prolapsed Kidney, Further Consideration of (South. Med. Jour., June, 1912). J. A. Crisler, Memphis.
- Prostatic Disease in the Aged, the Prognosis of (Am. Jour. Surg., June, 1912). H. Lilienthal, New York.
- Prostatic Disease, Some Phases of (N. Y. Med. Jour., June 15, 1912). L. B. Bangs, New York.
- Relation between Otic and Intracranial Diseases (Surg., Gyn. and Obst., June, 1912). G. Bacon, New York.
- Removal of Sternum for Cancer with Suturing of the Innominate Vein (Surg., Gyn. and Obst., June, 1912). E. Lanphear, St. Louis.
- Renal Decapsulation for Chronic Nephritis, Results of (Med. Rec., June 1, 1912). S. Lloyd, New York.
- Retroperitoneal Perforation of the Duodenum. With a Suggestion for Treatment (Brit. Med. Jour., May 4, 1912). E. D. Telford, S. B. Radley, Manchester.
- Rodent Ulcer, the Treatment of (Lancet, May 18, 1912). E. R. Morton, London.
- Roentgen Ray as a Therapeutic Agent (Col. Medic., June, 1912). J. D. Gibson, Denver.
- Rupture of the Abdominal Wall, Postoperative and Spontaneous (Brit. Med. Jour., May 25, 1912). A. G. Stewart.
- Shoulder Disability (Stiff and Painful Shoulder) (Am. Jour. Surg., June, 1912). W. M. Brickner, New York.
- Spinal and Local Anesthesia Including Venous (Detr. Med. Jour., June, 1912). G. Van Amber Brown, Detroit.
- Spinal Curvature, Treatment of (Calif. S. Jour. Med., June, 1912). J. T. Watkins, San Francisco.
- Suprapubic Two-Step Operation for the Removal of the Hypertrophied Prostate (Am. Jour. Surg., June, 1912). L. S. Pilcher, Paul M. Pilcher, Brooklyn, N. Y.
- Surgical Importance of the Parathyroids and Closely Allied Lymph Nodes (Jour. A. M. A., June 1, 1912). N. Ginsburg, Phila.
- Tetanus, Treatment of, with Magnesium Sulphate, with Report of Three Cases (Jour. A. M. A., June 8, 1912). G. Parker, Peoria, Ill.
- Thoracic Aneurism Treated with Gold Wire and Galvanism (An. of Surg., June, 1912). W. C. Lusk, New York.
- Tonsillar Hemorrhage, Causes, Prevention and Treatment (Med. Rec., June 1, 1912). G. H. Cocks, New York.
- Traumatic Finger Amputations (Buf. Med. Jour., June, 1912). A. N. Noehren, Buffalo.
- Vaccine Therapy a Definite Surgical Adjunct (South. Med. Jour., June, 1912). W. W. Crawford, Hattiesburg, Miss.
- Vanadial Steel Bone Plates and Screws (Surg., Gyn. and Obst., June, 1912). W. O'Neill Sherman, Pittsburgh.
- Warmed Anesthetics, the Value of (N. Y. Med. Jour., June 1, 1912). J. T. Gwathmey, New York.

# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

AUGUST, 1912

No. 8

## Original Articles

### PANCREATITIS.\*

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#### DEVELOPMENT.

The pancreas makes its appearance at a time when the embryonic alimentary tract is represented by a short, straight tube. This tube occupies a central longitudinal position, with its mesentery directed backward. From an "anlage" just within this mesentery arises that part of the pancreas known as the dorsal outgrowth, while anteriorly to this, and upon the ventral surface of the tube, arises another portion, designated the ventral outgrowth. Just prior to the appearance of the latter, and in its near vicinity, the liver has reached the stage of duct development, so when the duct of the ventral pancreas finally pierces its periphery, it is engaged by the common bile duct, entering the tube in conjunction through a common papilla.

Meanwhile the dorsal pancreas or outgrowth has developed its ducts, the main one up to this period remaining blind. About this time a change is noted to have taken place in the tube. Its upper portion assumes a spindle shape, while a segment immediately beneath is rotated the half turn upon its long axis. This is commonly spoken of in embryology as the "rotation of the duodenal portion to the right."

In this way the mesenteric border is carried from the back to the front, including a reflection of the mesentery itself, later causing this part of the alimentary tract to be fixed. At the same time the mesenteric margin is brought forward and the ventral surface turned backward, carrying with it the ventral pancreatic outgrowth together with the common bile duct and bringing into juxtaposition the dorsal and ventral pancreas for the future development and maturity of the gland as a whole.

When the ventral and dorsal outgrowths are finally brought into apposition by the rotation of the duodenum, a part of the common bile duct is sandwiched between the apposing surfaces, future fusing making it appear that the duct actually pierces the head of the gland. Now comes the duct of the dorsal outgrowth through its peripheral pointings, piercing the ventral gland on one end to anastomose with its main duct, while with the other it seeks to enter the duodenum just above the papilla of its fellow in common with that of the liver.

In fifty per cent. of all cases examined this end of the dorsal duct had failed to leave the gland—much less to enter the duodenum, while in the fifty per cent. in which it had, it was patent in but ten per cent. Part of the head, the body and tail of the pancreas are developed from the dorsal outgrowth which, leaving the mesentery, travels from right to left. Its duct, to where it anastomosed with the ventral duct, is named after Santorini, who first described it. In 1643 Wirsung discovered that "the pancreas is traversed by a duct that empties into the duodenum." This made the recognition of its function possible, and so that Wirsung be not forgotten, the principal duct of the gland retains his name.

While the order of development I have mentioned is the usual one, it is not constant. Many variations have been observed.

#### THE PANCREAS AS A DUPLEX ORGAN.

That the pancreas is more than a producer of digestive fluid is now conceded by many physiologists. The islands of Langerhans are being classed to-day with the ductless glands by many eminent authorities. It has been proven that their internal secretion presides over carbohydrate metabolism. The point of interest here in connection with these inter-acinar islands is that they are but seldom affected in pancreatitis. When they are, glycosuria ensues.

\* Read before the Portland County Medical Society, May 1, 1912.



## BILE AND ITS RELATION TO PANCREATITIS.

The blood supply of the alimentary tract was developed on different lines than that of other structures of the body in that the blood was not permitted to return directly into the vena cava. Instead, it was carried to a common collecting vein which finally distributed it throughout the liver for the establishment of the portal circulation. Why was this? Indeed, the omniscience of a wise creator is shown in the answer; for had the blood been returned directly into the general circulation from a viscus whose epithelial lining was to be the common and continuous host of infective micro-organisms, great danger to the blood, as a whole, would have been invited. For such blood, a portal with a sentry must be provided; then should any of these infective organisms invade, they would meet death without quarter. And later still, when that wondrous glycogenic function was imposed upon the same sentry, how ingeniously were all invaders converted into fuel, the heat therefrom being appropriated to the needs of the body chemistry.

Bile, being in part the bi-product of such blood sterilization, it occurred to us that it might be antitoxic toward the regular order of bacteria inhabiting the intestinal canal. On this theory the following experiments were performed: Six dogs of various sizes and breeds were equally divided into two sets. The first set was opened up, the common bile duct ligated and severed, and the gallbladder converted into an external fistula. A sterilized diet was then given for a period varying from four to six months to each set of dogs and the results noted. Besides the difference in the color of the stools, which were very white in those operated on, nothing of interest was recorded. With their bile flowing out at the side of the body, the usual degree of good health prevailed. At the end of four months a dog from each set was placed upon a putrid diet with which large cultures of streptococci and staphylococci were mixed. The proof of our theory seemed to obtain. At first it was noticed that there was an increase in the amount of bile discharged per fistula; its color deepened from a pale amber green to a dark muddy green. In three days this dog was still quite well, but the other had developed a most severe dysentery. The fourth day the dysenteric discharge was bloody and acrid; tenesmus was marked. At times the stool appeared not unlike the bile from the other dog. The poor animal refused to eat further of the horrible diet, but lapped water greedily. All three dogs responded in a similar way, but recovered following a slow convalescence. Note the striking difference in the

dogs of the operated set. Constipation persisted; for periods varying from two weeks to as many months the health did not seem to change, then decline was rapidly followed by death. Post-mortem showed abscesses throughout the entire liver.

At the time these experiments were performed, 1904, in Oil City, Pa., the following were our conclusions: "When the antitoxic properties of bile are raised to a degree above what may be termed the normal it is irritating, if not escharotic, to the intestinal mucosa." Again, "when infective matter is forced into the portal stream of an animal whose bile is not permitted to be reabsorbed from the intestinal tract, the liver succumbs to the infection for the want of this natural antitoxic protection." Subsequent to the above experiments, Webster, of Chicago, in a paper before the Mississippi Valley Medical Society, pointed out from similar observations that the so-called "auto-intoxication" is due to faulty functioning of the liver.

At the time, the writer knew nothing of anaphylaxis, but viewing it now in the light of a better knowledge of the subject, it would seem that neglect of its consideration would be a serious omission.† When an increase in the number of micro-organisms occurs in the intestinal tract, and the antitoxic or anaphylactic properties of the bile are thereby proportionately raised, its irritating effect would doubtless be first manifested by a swelling of the mucous membrane lining the biliary passages. The mucosa of the duodenum below the papilla would suffer next, and should the papilla be small, as many times it has been found to be, inflammatory occlusion of this orifice would follow. In this way would pressure be produced within the ducts of both the liver and pancreas until a separation of the epithelial cells lining these passages had permitted escape into the blood through the intercellular spaces. This is the mechanism of the so called catarrhal jaundice, and is nature's safety-valve against pressure necrosis which otherwise would be disastrous. If the pancreas were compelled to retain an influx of this irritating bile too long, pancreatitis would be the likely result.

## CHOLELITHIASIS.

That gallstones are an etiological factor in pancreatitis is now too well recognized for comment. Back of this, we are assured that the nucleus of a biliary calculus is dead micro-organisms. How such dead bacteria find entrance into the gallblad-

†Since preparing this paper we read an article from the pen of Dr. Ludvig Hektoen, of Chicago (*Journal American Medical Association*, April 13, 1912), page 1081, on "Allergy or Anaphylaxis in Experiment and Disease." In this the essayist speaks of bloody dysentery as an anaphylactic manifestation. The article should be widely read.

der is a matter of conjecture, but expressions of recent opinions incline to or favor the indirect route of the portal system.

When a stone has been forced into the common duct and begins its descent toward the duodenum, two points where it may become engaged have to be considered, namely, where the duct pierces the pancreas and the distal extremity of the ampulla of Vater. Stones the size of a robin's egg have not infrequently been removed from the common duct between the junction of the cystic duct and the pancreatic margin. Below this the reinforcement of the pancreatic tissue limits the duct's capability of dilating; but should a stone be so small as to reach the ampulla and obstruct the papilla, the secretion of each gland would be suddenly arrested, and unless the duct of Santorini was patent within the duodenum, bile would be regurgitated into the ducts of the pancreas, and so suddenly that acute hemorrhagic or necrotic pancreatitis would be likely to follow. It is in this very class of cases that operation is seriously interfered with by persistent hemorrhage. This hemorrhage is not, as previously supposed, due to the jaundice. Experiments carried on by myself led us to conclude that it was entirely due to the presence of the pancreatic enzymes that had been taken into the blood. Later we learned that pancreatin would retard the coagulation of blood in a vessel, and then assumed that absorption of pancreatic juice into the blood destroyed, to a degree in direct ratio to the amount absorbed, the fibrin ferment. When obstruction to the bile is independent—no matter how profound the jaundice—there need be no fear of hemorrhage; its occurrence early in operating on such cases is an assurance that the pancreas, as well as the liver, has been obstructed.

The cause of pancreatitis, whether acute or chronic, may, therefore, be looked for in occlusion of the papilla in cases where the duct of Santorini has failed to enter the duodenum and remain patent, converting, as Opie has pointed out, the two ducts into a closed channel, with the entrance of bile into the pancreas or of the pancreatic juices into the bile passages.

Post-mortem has repeatedly demonstrated that biliary calculi no larger than a grain of wheat or a small pea are capable of obstructing the papilla. This fact has made many conservatives when cholecystectomy is being considered, for, whenever pancreatitis is even suspected, drainage through the gallbladder is the ideal treatment.

As the diagnosis of pancreatitis is usually made on the operating table, I will not discuss it here.

Severe epigastric pain, usually without vomiting, is suggestive, to say the least, and indicates incision. In two instances the writer operated with the idea of having to deal with an acute perforative gastric ulcer, but exposure of the region revealed an acute pancreatitis. Areas of fat necrosis throughout the gastrocolic omentum directed our attention to the pancreatitis.

It has been our custom to treat such cases by carrying drainage through a rent in the gastrohepatic ligament down to a position well beneath the head of the gland. In addition to this, drainage has been established by a cholecystostomy.

### PASCALE'S OPERATION IN THE TREATMENT OF TALIPES EQUINO-VARUS CONGENITUS.

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In reading the literature on this subject of orthopedic surgery we meet a series of theories regarding the etiology and a long list of operations suggested for the treatment of this complex deformity. I think it worth while, therefore, to call attention to a most scientific and rational procedure originated by Prof. Pascale of the Second Surgical Clinic of Naples and performed by him and by most of the leading Italian surgeons with brilliant result.

I remember that when about fifteen years ago Prof. Pascale began to treat talipes equino-varus by his new method, he was very well satisfied with the complete and permanent correction of the deformity obtained. Now the number of operations reaches many hundreds, and the results have always been excellent. Through the courtesy of Prof. Pascale I had an opportunity of reading his exhaustive communication\* and of seeing him operate on two children, aged about five and six years, respectively, while in Naples last December attending the clinics.

In both these cases ether was used for general anesthesia, and the field of operation disinfected with iodine tincture. The Professor made a curved incision, about one inch long, down to the bone, at the inner side of the foot, the middle point corresponding to the astragalo-scapoid joint. The soft tissues, including the internal plantar artery and nerve, were retracted downward, and the lower calcaneo-cuboid-scapoid ligament incised till the knife penetrated the astragalo-scapoid joint. The

\* Dr. Giovanni Pascale. Piede torto varo-equino-congenito, comunicazione alla X riunione della Società Italiana di Chirurgia, Roma, 1896. (Estratto dalla Gazzetta internazionale di medicina pratica, anno III, 1890.) Napoli Stabil. tip. Cav. Gennaro Salvati, 1900.

foot could then be straightened easily and given the desired abduction. The wound was closed with a couple of stitches and a plaster-of-Paris cast applied, which was removed in ten days. It took but a few minutes to perform the operations, while in one of the children a complementary section of the tendo Achillis was resorted to.

#### ETIOLOGY AND PATHOGENESIS.

To thoroughly understand Prof. Pascale's procedure we must consider with him the pathogenesis of congenital talipes equino-varus. The foot, whose function is to bear the weight of the body in the erect position, reaches in man its highest development as a sustaining apparatus and represents the most perfect architectonic type. The foot may be considered as a double vault, an antero-posterior and a transverse one, the latter being really a half vault, completed by the half vault of the other foot. The antero-posterior vault has three pillars, the posterior represented by the head of the os calcis, the other two anterior, smaller, represented by the heads of the first and fifth metatarsal bones. This vault holds its shape because the different bones constituting it are united by strong ligaments, aided by the action of the tendons and muscles. The architectonic type of the foot may be altered from disturbances, 1st, of the skeleton of the foot; 2nd, of the ligaments and muscular traction; 3rd, of the innervation; and 4th, of the gravity of the body; these give origin to the main deformities of the foot.

The *theory of the primitive alterations of the bones* no longer has any followers. The tarsal bones ossify very late in extrauterine life and their alterations happen only as the result of static laws and of opposing pressure. Furthermore, the *theory of the arrest of the development of the foot* with the result of defective rotation is no more of importance. If so, why do we always have an arrest of development of the astragalus and scaphoid, while the front part of the foot develops normally?

According to the *mechanical theory*, if for any reason (loss of the liquor amnii, prolapse of the cord, narrowness of the uterus) the resulting asphyxial state of the fetus is prolonged until the termination of intrauterine life, the small degree of varus, normal only in the beginning, becomes permanent and accentuated. This theory is accepted by many, but if it were correct, we ought to have only an alteration referable to an exaggeration of flexion according to a normal type. Instead, the equino-varus foot presents a more com-

plex deformity attributable to abnormal or inordinate muscular traction. In intrauterine life, on account of the great excitability of the spinal cord and of the cortex for abnormal peripheral stimuli or for autointoxication, the inhibitory centers not being developed, there may be primitive muscular spasms which give rise to congenital deformity, with alterations especially of the peri-articular ligaments. Such deformities are likely to become worse as soon as the baby begins to walk, for static reasons. In the erect station the varo-equinus foot rests on the most convex part of the external border corresponding more often to the cuboid, thus increasing the adduction and the inward flexion of the forefoot. The internal part of the body and of the head of the astragalus compressed between the scaphoid and the os calcis on one side and the bones of the leg on the other, will be impeded in its development, while the external part of this bone will grow freely; the consequence of this uneven development will be an aggravation of the inflection of the bone and therefore of the forefoot inward.

Now, one word about the articular alterations: They take place constantly in the medio-tarsal joint. The main changes do not exist on the inner side of the foot nor in the deltoid ligament, but always in the plantar portion of the medio-tarsal joint. On opening the inner side of the astragalo-scaphoid joint the foot keeps its shape; while it is able to undergo abnormal movements if we freely open the plantar part of the same joint, cutting the calcaneo-cuboid-scaphoid ligament. Let us examine this ligament, which is of greatest importance. Anatomically there are two ligaments, viz.: (1) The calcaneo-scaphoid inferior, called also fibro-cartilage (capable of ossification), which completes the articular surface of the scaphoid and is attached to the lower apophysis of the calcaneum, reaching the posterior inferior contour of the scaphoid. (2) The calcaneo-cuboid inferior, called also the great plantar ligament, in which we can distinguish two portions: a superficial one attached to the tuberosity of the calcaneum and the tuberosity of the cuboid and the bases of the metatarsal bones with three or four digitations; and the deep, shorter, but wider and stronger, originating at the deep portion of the calcaneum and attaching itself like a fan to the inferior surface of the cuboid. Surgically they can be considered as an unique ligament with median bundles constituting the fibro-cartilage, and external and internal bundles directed to the scaphoid and cuboid.

From anatomical research and from the study of

the deep plantar ligaments of the medio-tarsal joint, we reach the following general conclusions:

First. That the lower fibro-cartilage with its cartilaginous part constitutes an integral part of the astragalo-scaphoid articulation, which in this way becomes closed inferiorly.

Second. That this altogether constitutes the strongest ligament of the joint.

Third. That this fibro-cartilage has no direct relation with the astragalus above because it is not inserted to the head of that bone, and on taking off the astragalus we can see, at bird's-eye view, this fibro-cartilage intact.

From a summary of our study it appears that:

(a) The main alterations of the equino-varus foot reside in the neighborhood of the medio-tarsal joint.

(b) That the bones of the forefoot are normal (metatarsal and toes).

(c) That the tarsal bones in children who have not walked, nor have undergone the influence of muscular action, do not show those signs of deep alteration that we encounter later in the skeleton of equino-varus feet.

(d) That these osseous alterations appear later, i. e., after walking and changed static conditions.

(e) Finally that the equino-varus deformity is not simple but complex, and consists of: (1) Initial alteration owing to the disturbed mutual relation of the articular surfaces due to disordered muscular action (convulsive spasms, autointoxications, etc.) from reflex spinal or central cortical-irritation. (2) Altered shape and structure of the peri-articular ligaments, especially of those located in the deep plantar part of the medio-tarsal articulation. All the other alterations are consecutive. But, because the maximum of the deformity is in connection with the astragalo-scaphoid joint, it will be understood that the most distorted structure will be the fibro-cartilage already described in detail as constituting the integral part, inferiorly, of this joint. This strong ligament, on account of forced adduction and of twisting of the foot, becomes rigid, shorter, and deformed; and because it contains in its interior a cartilaginous nodule, it undergoes ossification, losing entirely every trace of elasticity, and unable to follow even the most limited movement of the articulation, which becomes solidly and permanently fixed in this abnormal position, incapable of being corrected without freeing the joint from such abnormal restrictions. Now if we divide freely in the sole of the foot all this fibro-cartilage and all the fibers passing from the calcaneum to the

cuboid (cuboid ligament), it will be easily understood how all the medio-tarsal joint will become freely open inferiorly and internally so that all the forefoot may be brought gradually into a position of abnormal abduction and dorsal flexion. As a rule in these manœuvres all the tissues yield and adapt themselves in a really wonderful way. However, we must pay attention to the fact that while the repair of the tendons and aponeurosis is rapid, on the other hand the repair and correction of the skeleton is more tardy, nature employing months in processes of atrophy and formative activity of the bone tissue.

Pascale's procedure has the following objects:

First. To free the medio-tarsal joint from the ligaments which fix it in an abnormal position.

Second. To reduce in a correct position the articular surface.

Third. To keep the foot with bandages in correct position for a while.

Fourth. To compel the different bones of the foot to adapt themselves to the new static modification, allowing the muscles to functionate in these new conditions.

The lower limb, in cases in which alterations exist, also becomes corrected.

#### TREATMENT.

The methods now used may be divided into:

I. Non-operative. II. Operative.

I. To this series belong:

(a) *Massage*. This alone is insufficient, but is of much aid to other methods, and useful after Professor Pascale's operation, which must be performed when the baby begins to walk.

(b) *Orthopedic apparatus*, which alone is not effective, although the little staff with rigid splint having a plantar movable hinge is very serviceable in the beginning after the operation.

(c) *Forced straightening*, a favorite measure with many surgeons (Delorme, Wolff, Koenig, Krauss, etc.), is not devoid of danger. Pascale's method is to be preferred, just as osteotomy to-day is preferred to osteoclasia.

II. This comprises:

(a) *Tenotomies* and *aponeurotomies*. These were first performed by Delpesh in 1816 and applied in 1830 to the treatment of minor talipes by Stromeyer. While the early result was good, reproduction of the deformity took place as soon as the scar tissue was re-formed.

(b) *Removal of one or more bones*. The most deformed bones are the astragalus, scaphoid and cuboid. With removal of the cuboid the results

were poor; with the Davy operation, viz., total tarsotomy, extensively used, they were good. The operation consists in the resection of a bony wedge from the tarsus. Astragalectomy has proved unsatisfactory both as regards early and late results. It certainly does correct equinus; it allows flexion of the foot on the leg, but does not correct varus and the adduction persists. Championnière's procedure or large bony extirpations is interesting. Championnière began extirpating the astragalus alone; later he added exsection of the scaphoid and cuboid; then he went farther, removing all the bones of the tarsus except only the posterior part of the os calcis, while in the most rebellious cases he resected the posterior part of the fifth metatarsal bone. First he employed the plaster-of-Paris cast, later he recommended movements even eight to ten days after the operation. The early results are excellent, there being only shortening of the foot, but the late results are no better than those of cuneiform tarsotomy or the method *par morcellment* of Péan.

Soon, however, the enthusiasm for bony resections, more or less extensive, diminished and surgeons went back to the *method of the tendinous and ligamentous sections*. The method adopted by Phelps in 1884 was a vertical incision corresponding to the astragalo-scaphoid joint, wide enough to eventually allow the section of the tibialis anticus, and down to the bone. All the soft tissues of the region were incised; next efforts were made to effect straightening, and if these were not successful, the ligaments were cut and the astragalo-scaphoid joint penetrated, tenotomy of the Achilles tendon completing the operation. Now surgeons are no longer enthusiastic regarding this method. In the Phelps method section of the astragalo-scaphoid ligament is not resorted to until a tentative reduction has been made to correct the deformity. Kirrison considers incision of the astragalo-scaphoid ligament and also of the Y ligament as a fundamental part of the intervention; he is not impressed with the importance of the calcaneo-cuboid ligament with its deep fibers. He leaves the wound open which, according to him, fills up with tissue which lengthens the inner side of the foot and effects a cure of the varus. Pascale's procedure takes advantage of the weight of the body of the patient, when standing, to keep in good position the articular surfaces before the tendons and the other fleshy parts have been completely regenerated. Carelli, Roth, Chillini, Soda, Castellani, Burci, Jacobelli, d'Antona, Durante, Alessandri, Ruggi and

Palazzi employ Pascale's method with excellent results.

#### PROFESSOR PASCALE'S METHOD.

First, a curved incision (2-4 cm. long) is made at the inner part of the foot following perfectly the arch of the deformity, so that the apex of the cut corresponds to the astragalo-scaphoid joint. Second, keeping close to the internal margin of the abductor hallucis and to the vault of the foot, all the soft tissues of the vault, especially the plantar artery and nerve, are retracted downward and protected. This is the most delicate step of the operation, but we succeed very easily, using as a guide the tendons of the flexor longus pollicis and common flexor, which lie close to the bony skeleton and directly upon the deep plantar ligaments, especially on the fibro-cartilage and lower calcaneo-scaphoid-cuboid ligament. Third, extending the foot strongly and cutting from within outward and upward with a proper bistoury, it will be easy to incise the deep plantar ligament (lig. calc. cub. scaph. infer.) and open the medio-tarsal joint, as will be immediately manifested by the failing resistance of all the forefoot. The deformity is now reduced. Fourth, we suture at once the soft tissues. Fifth, a plaster-of-Paris bandage is applied and this as a rule is removed between the eighth and tenth day; then a second is applied to be removed after twenty to thirty days, and so on several times. Finally, a rigid splint secured to the knee-joint, with a movable plantar joint fixed to a small sandal of hardened leather is applied for the purpose of giving support during walking, so that adduction and internal rotation will not occur. If besides the talipes equino-varus there is deformity of all the limb and valgus knee, we must employ an apparatus that reaches up to and is fastened to the pelvis. In most cases the valgus knee becomes corrected.

An operation like this, correcting such marked deformity without removing or resecting any part of the bony structures, without abolishing any circulatory or tropho-neurotic supply of the region, without producing any considerable adhesions from scar tissue, represents the ideal operative intervention.

*Inconveniences and dangers.* Suppuration must be avoided by the strictest asepsis. Small ecchymoses or necrotic spots of the skin are of trifling importance when they are aseptic. Relapse takes place when the calcaneo-cuboid-scaphoid ligament has not been entirely severed, or when the reduction

has not been maintained for a sufficiently long time. Letting the patient walk early, massage and electricity are complementary measures making for complete success.

The operation has been performed with excellent result on boys up to the fourteenth year. An indispensable requisite is that the articular surfaces of the different bones constituting the medio-tarsal joint be free, allowing some motion between them, because when they are solidly adherent, when between the head of the astragalus and the scaphoid, the astragalus, the cuboid and the os calcis on the outer side we have a real bony ankylosis and the vault has been replaced by a deformed mass, it becomes necessary in order to correct this deformity to perform a cuneiform osteotomy, with the apex inward and upward toward the astragalo-scaphoid joint and the base forward and outward, embracing completely the calcaneo-cuboid joint and the mucous bursa which is always present.

#### A CASE OF TUBERCULAR PERITONITIS TREATED BY INTRA-ABDOMINAL USE OF OXYGEN.

By H. D. MEEKER, M.D., New York.

In April, 1908, an Italian boy, ten years old, was admitted to the Polyclinic Hospital. He was pale, undersized, very poorly nourished, and had a markedly protruding abdomen.

Physical examination justified the diagnosis of tubercular peritonitis of the ascitic type, and operation was decided upon. On opening the abdomen the peritoneum was found thickly sown with miliary tubercles, mostly discrete, although a few small conglomerate masses were in the omentum, mesentery, and upon the intestines. A few tubercles were felt on the surface of the liver. The peritoneum was congested and coated with a thin layer of fibrin. A large amount of olive colored serum was found free in the peritoneal cavity; no sacculations were discovered. After the removal of the ascitic fluid the incised peritoneum was sutured, leaving an opening which admitted a small, blunt glass tube, through which oxygen was passed into the abdominal cavity. The abdomen was distended until the wall was moderately tense, the tube withdrawn and the wound closed.

The anesthetic was administered by an expert, Dr. James T. Gwathmey, but the child took it badly from the start. Cyanosis was marked, respirations feeble, the pulse ranging from 120 to 140. Upon

the introduction of oxygen the cyanosis was replaced by a healthy pink blush, the pulse quickly dropped to 100, and the patient began to come out from under the influence of the anesthetic almost immediately. Subsequent nausea and pain were not of sufficient moment to demand any special consideration. The bowels moved spontaneously on the second day. The abdominal girth became progressively smaller, the distended veins in the abdominal wall less conspicuous. On the fifth day the abdomen was flat. Pulse and temperature were normal from the first day. There has been a progressive gain of flesh and strength, and to-day, nearly four years later, the boy presents the appearance of a normal, healthy individual.

The mode in which laparotomy has benefited this type of tuberculous peritonitis has been attributed to the relief of tension, the admission of air and of light, and to the removal of the exudation with its toxins. Japanese surgeons have made use of direct sunrays. It has been abundantly proved that the removal of the fluid by aspiration is not sufficient, but that an actual incision is required.

The behavior of the case just outlined, led to the conviction that the intra-abdominal introduction of oxygen was entitled to a place in surgical therapy. In order to determine the value of the procedure and establish it on a scientific basis, a series of animal experiments was carried out, the object of which was to study the beneficial possibilities of oxygen when introduced into the abdominal cavity and also to become acquainted with its possible dangers.

#### EXPERIMENTS ON ANIMALS.

The work was done in the Physiological Laboratory of the College of Physicians and Surgeons, New York, through the courtesy of Professor John G. Curtis. Credit for valuable assistance is due to Dr. James T. Gwathmey, who anesthetized the animals. While realizing full well with what difficulty a cat's peritoneum is infected, nevertheless all operations were rendered as aseptic as possible.

The first series was conducted to determine the *absorbability of oxygen* when injected into the abdominal cavity of the cat. The following technic was employed: A cat was anesthetized, the abdomen shaved, and an incision made down to the peritoneum. A small cannula was introduced through this tissue at a sharp angle while the peritoneum was lifted away from the intestines. The cannula was secured by a purse string suture of silk. The arrangement of apparatus made it possible to determine the amount, temperature, and pressure of

the oxygen used. The gas was introduced at a temperature of 38 degree C. in some cases and 40 degrees C. (104 degrees F.) in others.

Several animals were distended with 200 c.c. of oxygen at 60 mm. water pressure, and others with 400 c.c. at 200 mm. water pressure. After withdrawal of the cannula and closure of the wound the cat was immersed in a jar of water to determine possible leakage. The animals were observed at frequent intervals and reduction in the size of the abdomen noted. When the abdominal girth approximated the normal, the cat was again anesthetized, the abdomen punctured under water, and any gas bubbles expressed were collected and measured. No chemical test of the gas thus collected was made. The summary of this series was as follows:

1. Oxygen was completely absorbed in all cases left undisturbed seventy-two hours. In six cases no trace of the gas could be found after twenty-four hours, and in two cases none after eighteen hours.

2. The increased intra-abdominal pressure had but little influence in hastening the process of absorption.

The *second* series of experiments was performed to note the effect of the intra-abdominal injection of oxygen on *blood pressure, pulse, respiration*, its influence on the *degree of the anesthesia* and the time of recovery after the anesthetic had been discontinued. A cat was anesthetized, a carotid artery exposed and connected in the usual manner with a mercurial manometer and kymograph. The oxygen was introduced into the abdomen in accordance with the technic previously described. The following observations were made:

1. A slight increase in the pulse rate. This was probably due to a certain amount of the oxygen reaching the heart and stimulating that process which causes contraction of the heart muscle. This theory is borne out by the studies of Oehrwall, who found that a volume of blood sufficient to fill a frog's ventricle would maintain contractions for hours, provided the heart was surrounded by an atmosphere of oxygen. A heart brought to a standstill by a lack of oxygen could be made to beat again after an arrest of twenty minutes, by giving it a fresh supply.

2. A slight increase in respiration. This was probably due to a stimulation of the respiratory center, dependent upon an increased production of carbon dioxide, in turn a result of more active oxidation.

3. There was a slight rise in blood pressure, which returned to normal in two or three minutes. The rise was probably due to pressure on the

splanchnic vessels, thus assisting the venous flow to the right heart, while obstructing the arterial flow. The return to normal was probably due to a compensatory dilatation of other vessels and to diminished diaphragmatic excursions which would cause a lessened amount of blood to flow from the right to the left heart through less distended lung tissue.

4. In all cases the immediate effect upon the degree of anesthesia was marked, the animal showing a tendency to come out from under the influence of the anesthetic almost immediately. In cases where the anesthesia was profound, reflexes quickly became active.

5. Animals in which the oxygen had been introduced were able to stand up in from two to ten minutes after the discontinuance of the anesthetic.

6. All reactions were more prompt when the heated oxygen was employed.

In the *third* series of experiments a number of cats were distended with air, the same technic, quantity, pressure and temperature of gas being used as in the case of oxygen. The object was to effect a contrast with the previous experiments. The effect on the pulse and respiratory rate was even less marked; the blood pressure showed essentially the same phenomena as previously described. The influence of the introduction of air upon the degree of anesthesia was practically *nil*. The time required for recovery after the anesthetic had been stopped was from fifteen to twenty-five minutes.

In the *fourth* series of experiments, several animals were distended with oxygen under high pressure to determine the danger point of intra-abdominal pressure as manifested by a fall in blood pressure, respiratory embarrassment, and cardiac failure. The gas was introduced in the same manner as in the previous experiments, but the pressure measured by a mercurial manometer.

The pressure was raised to the equivalent of 1,800 to 3,000 mm. of water; in all cases the abdomen was exceedingly tense so that it was scarcely possible to make any indentation with the finger tip. It was observed that the blood pressure rose steadily until the intra-abdominal pressure reached a point varying between 1,000 to 3,000 mm. of water, when it suddenly dropped. The heart action became more rapid and less regular, and respiratory embarrassment was progressive up to this point, when respiratory failure, primarily, and cardiac failure, secondarily, caused death in a short time. Autopsies revealed no macroscopic damage to the viscera. The effect on the animal of the high intra-abdominal pressure demonstrated that the



danger from the mechanical pressure of the gas in the human subject may be practically disregarded. There was but a slight rise in blood pressure and no marked respiratory or cardiac disturbance until the pressure became extreme, i. e., a degree far in excess of that to which any human abdomen would be apt to be subjected either by accident or intent. In any case, the respiratory embarrassment would give warning of a danger point approach.

The *fifth* series was performed to determine the effect of the intra-abdominal introduction of oxygen on the formation of *adhesions*.

Abdominal section was performed on a number of cats. In some the parietal and visceral peritoneum was scarified, the abdomen moderately distended with 200 to 300 c.c. of oxygen, according to the size of the animal, and the wound closed. In six animals, air was used instead of oxygen. In others the same operative procedure was performed but no gas introduced into the abdomen. In still other animals, in order to make the approximation of the scarified surfaces a certainty, a portion of small intestine three inches long was anchored to the transverse colon by two silk sutures. The approximated surfaces between the sutures were generously scarified, the abdominal cavity distended with oxygen in one series, with air in another, and the wound closed. This procedure was repeated on other animals and the wound closed, but without the introduction of oxygen or air. The animals used in this series were left for two, four, and seven days, respectively.

The contrast observed on autopsy between the cats in which oxygen had been used and those in which no gas had been injected was striking. Of the twelve cats treated with oxygen, two had a few cobweb adhesions to the anchoring sutures; one had a few fine adhesions between approximated intestines; the others were free from adhesions of any sort. Adhesion formation was slight in the air cases, yet decidedly more marked than in the oxygen cases. In every instance, however, when no gas was employed, abundant adhesions were found, both inter-visceral and parieto-visceral. The difference between the adhesions found in the animals autopsied on the fourth and those autopsied on the seventh day was one of density rather than of numbers. The explanation of these results would seem to be that:

1. Both the air and oxygen mechanically held

the scarified surfaces apart until new cells had been produced.

2. The oxygen increased the activity of the individual cells, thus hastening a new growth of epithelium to replace the destroyed peritoneal cells and to cover over the denuded areas.

3. The increased intestinal peristalsis caused by the oxygen was unfavorable to the production of adhesions.

In addition to the observations already recorded, a striking change in the color of the blood was noticed upon the introduction of oxygen into the abdominal cavity of cats which were intentionally put into a condition of partial asphyxia. The dark blood quickly changed to scarlet. It was also observed that the intestinal peristalsis was somewhat increased by an atmosphere of oxygen. In no case was there macroscopic evidence that oxygen was an irritant to the peritoneum or any of the abdominal viscera.

A study of these experiments on the intra-abdominal introduction of oxygen in animals permits of the following conclusions:

1. Oxygen is completely absorbed from within the abdominal cavity—(a) more rapidly when warm; (b) not affected by pressure.

2. Oxygen is a slight respiratory stimulant.

3. Oxygen is a slight cardiac stimulant.

4. Oxygen has but little effect on blood pressure when the pressure of the gas is moderate.

5. Oxygen tends to bring an animal out more quickly from deep anesthesia.

6. Oxygen hastens the recovery of an animal after discontinuance of the anesthetic.

7. A pressure of more than 1,800 mm. of water may cause collapse.

8. Oxygen tends to prevent the formation of adhesions. It does so more effectively than an inert gas.

9. Oxygen quickly changes dark blood to scarlet in case of anoxemia.

10. Oxygen stimulates intestinal peristalsis.

11. Oxygen is not an irritant to the peritoneum or abdominal viscera.

It is chiefly to the active properties of oxygen that we must look for therapeutic possibilities. The organism may be regarded as an aggregation of living cells, each of which during life consumes oxygen and gives off carbon dioxide. Activity depends essentially upon oxidation; consequently not only is oxidation necessary for existence, but the quantity absorbed must bear a direct relation to the degree of activity. Quinquand has demonstrated that not only is oxygen absorbed by all

living body tissues, but that the avidity of different tissues for oxygen varies greatly, the difference doubtless being expressive of the relative intensities of their respiratory process. His experiments consisted of exposing one hundred grammes of tissues for three hours in an atmosphere of oxygen at a temperature of 38 degrees C. The quantity of carbon dioxide formed was approximately proportional to the amount of oxygen absorbed (*Comptes rendus de la Société de biologie*, 1890, No. 9).

The accuracy of these observations has been confirmed by others. Inasmuch as oxygen has been proved to increase cell activity in all body tissues, is it not reasonable to assume that in certain abnormal conditions this fact might be utilized for the benefit of the individual? The mechanical advantages of the intra-abdominal introduction of oxygen are also important. The bactericidal properties of this gas when thus employed offer an alluring field for investigation; this phase of the subject has been deferred for future study.

#### METHOD OF ADMINISTRATION IN THE HUMAN SUBJECT.

The so-called pure or eighty-nine per cent. oxygen should be used. It is warmed to a temperature of about 100 degrees F. by passing it from the tank in which it is compressed, through a bottle containing hot water, and then through a tube, preferably of metal, which is submerged in hot water. The gas enters the abdominal cavity through a rubber or blunt glass tube. The abdominal wound is closed except at the upper or lower end, where the tube is left partly in the cavity. Interrupted stitches are placed in the peritoneum at this point, but not tied, and a purse string loop is passed in the peritoneum around the tube. The other layers of the abdominal wall are sutured in the usual manner excepting those around the tube. After sufficient oxygen has been passed into the abdomen, the tube is withdrawn, the peritoneal stitches quickly tied, and the succeeding layers sutured.

A practical rule in determining the proper amount of oxygen to be used is to distend the abdomen until liver dullness is obliterated, having previously ascertained that the liver is not adherent to the abdominal wall.

The tendency to collapse after the oxygen has been absorbed has been observed in some of the patients and should be guarded against. This may occur at any time after twenty-four hours.

It has been seen only in cases in which the conditions had been extremely bad. The writer has used the oxygen intra-abdominally in a number of cases. No harmful effect has yet been seen; on the other hand, many beneficial results have been observed.

In conclusion I can but add that a study of the animal experiments and the results witnessed in the human subject would seem to justify the assumption that the intra-abdominal use of oxygen is entitled to an established position in surgical therapy.

### A CLINICAL TALK ON ECTOPIC GESTATION.\*

By H. S. LOTT, M.D., Winston, N. C.

The *first* thing for us to remember about ectopic gestation is, that it is a *reality* and not a *myth*, and that its victims are dying about us every day from *rupture* and *hemorrhage*—*unrecognized*.

The symptoms of rupture are those of sudden loss of blood from any cause. They comprise chiefly sudden, violent, and "sickening pain," with a quickened pulse, pallor, and collapse, if the hemorrhage is great and invades vital parts.

Parry, of Philadelphia, whose classic portrayal of extra-uterine pregnancy excels all others in point of clearness, of clinical detail, and also as to the pathology concerned, says that rupture may occur as early as the third week, and in his tabulated cases took place most often in the eighth week and as late as the twentieth and even the twenty-eighth.

Among the causes of this accident, Parry lays especial stress upon the "emotions." He cites a number of cases in which fear, anger, and sudden shock were so closely related that they must have had a causative influence. He says, "At first no importance was attached to the matter, but closer study led to the conclusion that we cannot deny the influence of strong emotions, occurring during or shortly after intercourse, as a cause of extra-uterine pregnancy." This fact is further borne out in the statistical evidence that more ectopic gestations occur in women who are guilty of illicit intercourse than in those in the marital relation. No doubt physical distortions and functional derangements play their part, and an important one; but the bulk of evidence is in favor of the emotional factors being paramount.

Ectopic gestation is the more comprehensive term, embracing, as it does, all varieties of erratic

\* Presented by request to Forsyth Co. Medical Society, May 14, 1912.

conception; whereas extra-uterine pregnancy only applies to those cases in which the implantation is beyond the limits of the uterine wall. Various good classifications have been made, but that of Parry seems to me the most simple and practical one.

Parry's classification embraces the following classes: 1. Tubal pregnancy. 2. Ovarian pregnancy. 3. Ventral or abdominal pregnancy.

1. Tubal pregnancy has the following varieties:

- (a) Tubo-ovarian, the ovum being arrested in the pavilion, which contracts adhesions with the ovary.
- (b) Tubo-abdominal, the ovum being arrested in the same locality. The tube may contract adhesions with neighboring organs. If it does not, the chorion may project into the abdominal cavity, with a part of its surface bare.
- (c) Tubal proper, the ovum being arrested between the pavilion and that portion of the oviduct which traverses the uterine wall.
- (d) Tubo-uterine, the ovum being arrested in that portion of the tube which passes through the uterus.

2. Ovarian pregnancy presents the following varieties:

- (a) Ovarian proper. The ovum is contained in the ovary, that organ remaining free from adhesions.
- (b) Ovario-tubal. The ovum is contained in the ovary, which contracts adhesions with the pavilion of the tube.

3. Ventral or abdominal pregnancy occurs as:

- (a) Primary. The ovum is developed from the outset in the peritoneal cavity.
- (b) Secondary. The development commences in the tube or ovary, the cyst ruptures, the ovum escapes and continues to live and develop in the peritoneal cavity.

Now, this division of the classes into varieties is valuable, and if such fine distinctions could be made in differentiation at the outset, before the inevitable *accident* and before the abdomen is opened, this would have practical bearings upon the prognosis and treatment; but we know that such is not the case, as the following clinical discussion will testify.

Certain conditions are distinctly surgical; ectopic gestation is one of these. Just why it occurs, the various theories advanced have not explained to our entire satisfaction. That it does occur, and frequently, is the main fact of vital interest. Most cases are supposed to have a previous history of sterility, but that this is not invariably the rule I will show directly. The accident is most frequent

in women who have never borne children; but to this also there are exceptions, showing that the impregnated ovum may pursue this erratic course and implant itself upon soil beyond the uterine cavity at all times throughout the child-bearing period.

The various points at which such an impregnated ovum may stop and begin its growth may be traced from the ostium internum of each Fallopian tube throughout the extent of their lumen; or migrating further and leaving the tube by way of the ostium abdominale, it may drop into the peritoneal cavity. There it may graft itself near the ovary, or, most likely, within the folds of the broad ligament, and from this site, as its growth advances and if the woman survives the rupture, which is sure to come, it may, at last, find its way into the retro-uterine pouch of Douglas.

Implantation, with growth of the ovum at any of these points beyond the uterine cavity, is sure to bring disaster. Those cases where gestation occurs in the proximal half of the tube seldom reach the surgeon, as they are most apt to prove fatal at the time of rupture and die without the condition being recognized or are reported by the coroner.

Ruptured ectopic gestation is a clear case of bleeding from a torn artery; and, in the light of to-day, should be recognized and the patient saved. Would you hesitate in the presence of a stab wound of the femoral artery, or would you cut down and tie the bleeding vessel?

The diagnosis, with the clinical picture once established in our minds, should not be difficult. In most cases there is a history of several years of sterility; then a suspicion of pregnancy; and during the early months, either with or without slight menstrual "show," the sudden occurrence of "intense abdominal pain, followed by anxious countenance, acute anemia, and collapse" (Price). Any case in doubt will become clear upon making the incision through the abdominal wall, as the omentum will be found black—flooded with blood.

Of those cases occurring in the distal half of the tube, with growth and development there and elsewhere within the range of possibilities, two notable ones have come under my observation.

The first one was a colored woman, seen in consultation. She was about twenty-six years of age and had been married several years without any pregnancies. Her attending physician reported that she had been suffering for several days with very severe abdominal pains, and that hypodermics of morphia failed to give her entire relief. The patient's condition, when I visited her, bore out his description. I found her lying on the bed moaning

with the pain and unable to keep in one position. Seating myself at the bedside, I watched her for a while. The woman seemed to be well nourished and in very good physical condition. Her eyes were clear and bright, the tongue clean, and the lips of a healthy color. The breasts gave no distinctive evidence, and there was no distention of the abdomen. The pains were distinctly recurrent and paroxysmal, the woman's attitude during the height of their intensity suggesting an expulsive character. As the wave of pain arose, the pulse would quicken, and she would change her position constantly in the bed and make very bitter complaint of her sufferings.

Upon making a vaginal examination, I found very little to help me. There was a normal virgin uterus in relatively good position. No mass could be detected on either side, and there was no marked tenderness at any given point in the vaginal vault. In passing the hand over the abdominal wall the sensitiveness of the left side was slightly more marked, but in the general hyperesthetic state of the woman this gave little guide as to any localized focus or point for attack.

The woman's menstrual periods had been fairly regular, some pain at each time, but not excessive in degree. It was now six weeks since she had menstruated, the flow failing to appear when last due.

Believing that such was the case, I told the attending physician that the patient had an extra-uterine pregnancy, and advised an immediate operation for her safety and relief. In sheer desperation my diagnosis was accepted, and on the following morning she was placed on the table in a negro cabin.

The abdomen was opened in the median line. Upon introducing the exploring finger the uterus was found and normally located. The tube and ovary of the right side were free and normal. On the left side the tube and ovary were fixed to the pelvic floor, and at about the middle the tube was expanded and occupied by a gestation sac, about the size of a walnut. This was on the point of rupture, which occurred almost as soon as the fingers came in contact with its presenting surface. Accompanying the rupture, there was escape of a small quantity of watery fluid. Fearing hemorrhage, I at once enlarged the rupture opening and removed from the cavity a spongy mass entire, which proved to be a complete placenta about the size of a silver dollar, with normal uterine and fetal surfaces. No fetus was found.

Placing a silk ligature about the tube, close to the fundus, and also one near its distal extremity

beyond the point of expansion, I excised the portion of tube between the ligatures. Feeling that I had accomplished my object in removing the product of conception, no attempt was made to loosen the ovary from its fixed position to the pelvic floor.

Inspection of the portion of tube removed confirmed the feel it had given to the fingers, viz., that it was an expanded Fallopian tube, having harbored a gestation sac and being on the point of rupture.

Being in some doubt as to the perfect toilet of the operation, and for the sake of safety, a gauze wick was carried down to the site of removal and brought out at the lower portion of the incision. Above this point the abdomen was closed, with interrupted through-and-through silkworm gut stitches.

The gauze was removed after twenty-four hours, and from this time on granulation was rapid and healthy. The upper portion of the wound united by first intention, the stitches being removed on the tenth day. The patient's recovery, with immediate relief of distressing symptoms, was practically uneventful.

This case seems to me to be of interest for several reasons: Thus the gestation could not have been more than six weeks advanced, and up to the time of writing this, I had seen no report of so early a case. Again, the diagnosis was necessarily made from the rational signs only, guided chiefly by the *recurrent* and *paroxysmal* character of the pains, which were exaggerated, no doubt, because of the erratic location of the gestation sac. Finally, this case leads us to believe that it is an *inherent power of the ovum* and not the peculiar structure of the uterine walls which causes the *normal, rhythmic contractions* of pregnancy and child-birth.

The second case was a much simpler one, inasmuch as the diagnosis, at the time of my visit, was comparatively easy. The patient was white and about thirty-five years of age. She had given birth to seven children, and at the time of this accident there was one child two years old, just weaned.

I was asked to see her in consultation at her home, nine miles in the country. The history given was that some weeks before, while in town, she had a sudden, severe pain in her "stomach" followed by a "fainting spell." She was given a sedative and ordered to keep quiet for a while before being taken to her home. Since that time she had, for the most part, been confined to her bed, with frequent recurrence of "fainting spells," either after or without much exertion. Having a child at the breast, the irregularities in the menstrual flow, or even its

seeming absence, had given no solicitude, and she had not believed that she was pregnant.

At the time of my visit she looked as one who had lost much blood; the face was blanched, the pulse quick and thready, and the slightest exertion would cause a "fainting spell."

Upon physical examination, the abdomen was found to be somewhat full and very sensitive. Entering an ample vagina, the finger detected a uterus which had the feel of a subinvolted rather than of a pregnant one. On either side of the cervix throughout the vaginal vault there was a fullness, somewhat like that of a presenting bag of waters, although of rather more resistance; while behind the cervix, bulging well down from Douglas' pouch, and covered only by the retro-vaginal wall, was unmistakably either the leg or the arm of a fetus, four or five months advanced.

The diagnosis of extra-uterine pregnancy being concurred in by the attending physician, the gravity of the woman's condition was explained to her and her family, and it was decided to remove her to the Twin-City Hospital. Being nine miles distant and a very rough road to travel, this was rather a serious matter for a woman almost in collapse. However, with stimulants and careful driving, it was accomplished, the patient reaching the hospital in safety. Although it was near midnight, no time was lost in preparing her for operation.

With a pair of long, half-curved and sharp-pointed scissors the vaginal vault was punctured just behind the cervix, and just where could be felt the presenting part of the fetus. Introducing the fingers of the left hand and exchanging the sharp for blunt-pointed scissors, this opening was rapidly enlarged to each lateral wall. To grasp its lower extremities and deliver the five months' fetus through this opening was a very quick and simple matter, and one that was accompanied by an immense gush of black fluid blood and clots. The quantity of this I am afraid to estimate, but it was very large, being the accumulation of several weeks' hemorrhage.

Being told that the patient had no pulse I asked that she be given some salt solution, and working as rapidly as possible, by passing my hand well up into the cavity, which was on the right side of the uterus, I emptied it of blood clots and cleared away as much of the placental growth as seemed consistent with the safety of the structures to which it was attached.

The flow of black blood was really alarming, and several times the patient was thought to be dead; but I irrigated the cavity with several gallons of

hot saline solution and, finally, by using very long and rather heavy wicks and carrying them high up, I packed it pretty full of gauze. She was taken from the table breathing occasionally and with a very feeble pulse.

For several days and nights after this it was a case of anxious watching and waiting, as the thread of life had been stretched to a very small filament indeed. Stimulants were given constantly, and the cavity was irrigated once or twice in each twenty-four hours with several gallons of hot normal saline solution, until at last the glimmer of hope on the faces of the faithful nurses who had given me their help was also shared by me.

A most interesting feature in the after care of this case was the sympathetic involution of the uterus, as this process progressed in the neighboring structures where the gestation had occurred.

Beginning soon after the removal of the fetus, at each irrigation there would be quite a free and pinkish flow, just like the normal lochia, from the mouth of the uterus. This continued for about ten days, gradually lessening in quantity, and finally bringing away shreds like cast-off mucous membrane. During this time the entire uterus diminished much in size and the cervix lost its full, congested appearance.

The recovery of this patient was very slow and tedious, but after five weeks in the hospital she returned to her home in pretty good condition. Within the eighteen months following this accident she conceived, and carried a normal pregnancy to the seventh month, and from that time her health has been most excellent.

This case is an exception to the rule that ectopic gestation occurs either in women who have never borne children, or that its occurrence is preceded by a prolonged period of sterility. It also seems of interest because of the unmistakable history, which, coupled with the physical examination at the time of my visit, made the diagnosis comparatively easy, and also made us feel very sure that, in spite of her condition being almost one of extreme collapse, operation was the only available means for the safety of the patient.

Removing the fetus through the vaginal vault was not the method of choice, but the patient was *in extremis*, and this seemed really the quickest way and the one which nature had pointed out for her relief.

Going in from above and making a clean removal of the ruptured tube, with safe ligation of all bleeding vessels, would have been a much more complete operation, lessened the subsequent dangers, and

greatly hastened her convalescence, provided she could have survived the more prolonged tax on her vitality. This was the question confronting me, and while I did not favor the vaginal route, I felt that I must defend not only a principle and a preference, but the life of my patient as well.

Since the report of these cases and in later years I have had a number of cases of ectopic gestation, all of which were operated on through an abdominal incision, and the subsequent histories of almost all have been satisfactory.

Two, however, were of unusual interest—one of these because of a recurrence in the opposite tube within a few years. In this case I was severely reproached by the patient for not completing my work at the former operation. The other one ended in a double tragedy. The mother had gone some weeks beyond full term, when I removed a fine, living boy from the abdominal cavity. He was handed over to the nurse, but lived only a short time. As the placental growth was deep and extensive, after weighing well the risks, I determined to attempt its removal rather than to subject her to the dangers of sloughing and infection; but the shock and the hemorrhage were too great, and the end came before she was removed from the table.

308 Masonic Temple.

### SYPHILIS.

#### A Report of the International Congress on Syphilis, Held at Rome, April, 1912.

By CHARLES M. HARPSTER, M.D., Toledo, Ohio.

*Surgeon to Toledo Hospital; Chairman, Section on Dermatology and Genitourinary Surgery, Ohio State Medical Association, 1912; Member of International Congress of Tuberculosis, International Congress of Syphilis, and Deutsche Gesellschaft fuer Chirurgie, 1912, etc.*

It was my privilege to attend the International Congress on Syphilis at Rome, April 8 to 13, 1912, through the kind invitation of Dr. A. Ravogli, of Cincinnati, Ohio, the secretary for the United States, and to meet members of the profession from all over the civilized world. Morris and McDonagh, of London; Finger of Vienna, Hoffmann of Bonn, Ahrendt of Berlin, Hallopeau and Milian of Paris, and various other noted authorities expressed their opinions fully regarding the use of salvarsan. Ehrlich and Wechselmann unfortunately did not appear to defend their position and to substantiate the claim by true clinical evidence that this remedy was a cure for primary syphilis in a single dose or in several doses.

It was the unanimous opinion that salvarsan was not a specific for syphilis in a single dose. In its use the method of McDonagh of London, I think, should be followed as the safest and most reliable. It is not fair to the profession or to the patient to give him one or two intravenous injections of salvarsan and then discharge him as cured.

It is very generally conceded that mercury alone seldom cures syphilis, although this statement is debatable to some extent. Up to this time no medication or serum has been discovered that is a specific in a single dose or in several doses.

McDonagh of London in a series of 800 cases in which salvarsan was used described his method as follows: Seventeen hours after his first intravenous injection of 0.06 gm. he makes a Wassermann test, and if negative, again in forty-eight hours. If after seventeen hours a positive reaction is obtained another intravenous injection is given in one week. If after seventeen hours the reaction is negative, but has become positive in forty-eight hours, a second dose is administered in one week. The same procedure is followed after each injection until no positive Wassermann is present after seventeen hours for the first three injections. A similar plan is resorted to in the succeeding injections, except that the interval is increased to two or three weeks, depending on the convenience of the patients. McDonagh has given as many as nine injections in a single case. He maintains that a positive Wassermann is not obtained in non-syphilitic cases by salvarsan, and that in syphilis a positive cure is indicated by a negative Wassermann seventeen and forty-eight hours after injection. In connection with salvarsan metallic mercury 2 grains is given with each injection, intravenously. I think mercury should be continued after the last injection of salvarsan for a period of some months, although McDonagh does not advise it, and a Wassermann made occasionally as a safeguard to the patient. He thinks that by this method of combining salvarsan and mercury syphilis can be cured, although further observations are necessary and more time must elapse before he is willing to make a definite statement.

In some cases where several injections had been made and a negative Wassermann had been secured, the time of taking the blood for the test was not the period when the blood would have shown a positive reaction, and both the physician and the patient have been deceived. In view of our present knowledge, it is very wrong to promise a cure for syphilis with only a few treatments.

Hoffmann has had five cases in which severe

symptoms of collapse followed the intravenous injection of salvarsan. He considers venesection indicated, while Ehrlich advises lumbar puncture in such cases of meningismus to relieve the intraspinal and intra-cranial pressure.

Hoffmann recommends salvarsan intravenously in full dose, one injection every week until three or five are given, combined with the use of gray oil (1 gr. metallic mercury each dose) over a period of one year—six courses of thirty days each with an interval of thirty days between each course.

We must not lose sight of Plehn's statement, however, that in some cases where an infection has been contracted in early youth and the patient has been for many years in perfect health, a positive Wassermann may be secured late in life.

The demonstration of the spirochæte pallida by Hoffmann and the serum diagnosis enable us to establish the presence of a syphilitic infection without a clear clinical picture to aid the diagnosis.

It has been proved experimentally that general metastasis of spirochætes takes place in some instances before the primary sore is clinically developed. Further it has been proved, through experiments with trypanosoma and in spirochæte diseases, that we can accomplish an absolute cure more surely and more easily, the sooner the treatment is begun. Therefore, in the general treatment of syphilis we must not lose this most favorable moment to achieve a speedy and radical cure.

Treatment must be commenced as soon as possible after a diagnosis is established. For this purpose the demonstration of spirochætes and the serum diagnosis should be made use of in every suspicious case. But even if the diagnosis is uncertain, the treatment should be initiated, at least in especially important cases, as for example, in married people. For nowadays through the aid of the serum method it is possible to establish the true condition in cases which are only suspicious by making repeated examinations over an extended period of time. We can tell whether the freedom from symptoms is due to a latency or an actual cure.

There exists no certain evidence to justify the old supposition, that cured syphilis leaves behind a true immunity. Animals actually cured—and quite surely, too, the human species—are capable of being reinfected. The second infection can take the course of the first one. However, in constitutional syphilis, especially during the first years following infection, a marked degree of insusceptibility of the skin does exist to a fresh inoculation, even if it is not absolute. But through especially energetic methods of inoculation, and using material abounding in spirochætes, the insusceptibility

can be overcome and a local super-infection produced.

Before syphilis has become constitutional (during the first weeks following infection) additional inoculations, whether with foreign or with the self-same virus, are followed without difficulty by further primary sores. Also, years after infection, when the disease is in process of healing, inoculations may have a positive result, if they are made in a region of the body free from the influence of the previous constitutional affection. Consequently, super-infection can occur, although only under special circumstances.

The form in which the product of a super-infection manifests itself depends entirely on the "special reactive faculty of the tissues" present in the diseased individual. Quite healthy tissues not yet vitiated react in the form of primary sores. The tissues of individuals affected with secondary malignant or tertiary syphilis show corresponding secondary, malignant or tertiary lesions. Nevertheless, in the late tertiary period one meets with lesions exceedingly closely related to the primary forms. These can be explained as a reappearance of the normal conditions of reaction of the tissues in the region in question.

So far, in animals, no one has succeeded in discovering a method of either active or passive immunization serum therapy. Perhaps the investigations of Kraus and Spitz allow us to assume that an immunity-treatment may yet be found; and also the possibility of establishing an immunization by means of pure cultures cannot be rejected.

Whenever practicable treatment is commenced after infection as a preventive measure before the metastasis of the spirochætes has occurred (the Wassermann reaction being still negative), or an abortive plan is instituted as soon as possible after the supposed dissemination, for after the disease has become constitutional the general treatment is, and always will be, the principal one, however much importance be attached to local and regional methods.

Antisyphilitic treatment without constant employment of the serum diagnosis is to my mind inconceivable. Since the absence of clinical symptoms affords absolutely no information as to the true condition of a syphilitic, the serum diagnosis is in all such cases quite indispensable. The positive reaction is a certain proof of the existence of an infection, when obtained at the proper time. Also the negative reaction, correctly estimated, provides very valuable and usually decisive data for diagnosis as well as treatment.

The serum diagnosis has given us the extremely



important, although very disturbing, knowledge that our previous treatment of syphilis in the majority of cases was totally inadequate. Accordingly, it must be fundamentally altered in the future.

I am convinced that the majority of syphilitic persons have remained uncured. In support of this, on the one hand, we have the great number of post-syphilitic diseases affecting the heart, aorta and the central nervous system, and, on the other hand, the rarity of re-infection. In the future our treatment must not rest content with a clinical absence of symptoms, it must achieve a lasting negative Wassermann reaction, taken at frequent intervals.

General treatment must be as energetically carried out as the organism of the patient can bear in every case. The curative effect is dependent on the quantity of the remedy administered. Consequently, those methods are to be preferred which offer the greatest certainty that the desired quantity is actually introduced with a minimum of bodily harm. In other words, injections are preferable to inunction and oral administration.

The true remedies for syphilis—I mean those which not only remove symptoms but also possess the power of killing spirochætes—are, as has been experimentally proved, the following:

1. Mercury.
2. The atoxyl group, arsenophenylglycin and salvarsan.
3. Antimony preparations.

Much more uncertain are the iodides and quinine preparations.

For the treatment of human syphilis the atoxyl group is excluded owing to its more or less dangerous action upon the optic nerve. However, mercury, arsenophenylglycin, and 606 are valuable and always to be employed. They are actually indispensable remedies, because they accomplish most excellent cures within dosage limits nearly always non-injurious.

Up till now we have not had sufficient experience with tartar stibiatus, but sometimes it acts excellently. Experimentally, its strong spirillicidal action has been proved.

Although mercury and 606 singly employed for a sufficient length of time in strong enough doses can perhaps accomplish the desired cure, surely the combination treatment is to be preferred. Such a combination of mercury and 606 offers the following advantages: With each drug one can keep well below the harmful dose, but through their conjoint use a strongly acting total dosage is obtained.

We are justified in supposing that some spirochætes react better with mercury, and others better with arsenic preparations. The manner in which

these attack and destroy the organisms is different; it must therefore be beneficial to utilize both methods of attack.

There is every probability that by employing in addition the antimony preparations the combination cure will be rendered still more potent and reliable.

Although it cannot be denied that occasionally a "therapia sterilisans magna" in the sense of Ehrlich is possible and actually occurs, nevertheless from the practical standpoint of antisypilitic medication at the present time, the chronic method of treatment must still be adhered to. This is to be accomplished, on the one hand, by using acutely acting and spirochæte-destroying means, and, on the other hand, by remedies with a slow action. At any rate, the spirochætes should be subjected to the lasting action of their antidotes for a year or perhaps longer.

In the course of the first year the occurrence of several negative reactions permits of a certain mitigation and diminution of the treatment, but this must not mislead us into a complete abandonment.

Late cases which show a positive Wassermann reaction with or without tertiary manifestations require an especially vigorous and consistent form of treatment. For experience has taught us that the transformation of a positive into the negative reaction is much harder to achieve than in early cases. The causes for this are quite unknown, granted that we can rely on the positive reaction. Perhaps this is attributable to "spore" formation (Pollitzer), or perhaps there exists a purely mechanical inaccessibility of the encapsuled syphilitic parasites. Hence follows the recommendation to combine the essentially spirillicidal remedies with the employment of other agents, such as iodides and similar preparations, in the hope of loosening the imprisoning walls. Touton speaks of a "mobilization" of the locked-up walls.

Neisser says, "Since the discovery of 606 we have adopted the following principles of treatment:

- "1. Commence as soon as possible.
- "2. Employ large doses of 606 repeated several times. At first we followed the intramuscular method, but now almost exclusively the intravenous method. Instead of the intramuscular injection of 606, I now inject 0.3 to 0.5 gm. of arsenophenylglycin, once a week, for three or four weeks.
- "3. Almost in every case this is combined with thorough mercurial medication. The total dose of mercury given for one cycle should be about 0.7 gm., mostly in the form of oleum cinereum injections, with perhaps some asurol injections as well.
- "4. Always continue the treatment for one year at least, so that a permanent, strong, and constantly

renewed action of the remedy is going on against the spirochætes, whether it be with 606 alone or 606 and mercury.

"This method of procedure, I am convinced, explains why we have scarcely ever seen a relapsing nerve affection (neurorecidiv)."

He further says, "We have apparently either prevented the formation of nests of spirochætes which are answerable for the relapse, or we have destroyed them early enough before they could give rise to a syphilitic process either in the nerve itself or the tissues surrounding it—a syphilitic process involving danger to the nerve either through the local inflammatory reaction resulting from the remedy introduced, or through a more or less complete previous destructive process."

In no case whatever can well substantiated proof be brought forward that this "neuro-relapse" is of a toxic nature.

701-3-5 Madison Avenue.

#### **FURTHER OBSERVATIONS ON PRURITUS ANI: ITS PROBABLE ETIOLOGIC FACTOR, RESULTS OF TREATMENT.\***

**A second report, based on the results of original research.**

By DWIGHT H. MURRAY, M.D., Syracuse, N. Y.

My original paper on this subject was presented to this Society at Los Angeles in June, 1911. The paper contained a series of nineteen cases of pruritus ani whose bacteriology indicated that the predominant cause is due to an infection of the anal skin by streptococci. During the year I have had many proofs of the correctness of the claims then made.

My belief in a distinct cause for this condition, which in the future may be designated coccigenous pruritus ani, is being confirmed daily by continued experience with and study of these cases.

The multiplicity of causes given in text-books will soon be modified and the etiology and treatment rewritten, and skin infection must become the keynote of all the persistent cases.

I am continually seeing patients who have cryptitis, proctitis, hemorrhoids of all varieties, cancer, hypertrophied papillæ, and polypi, representing all kinds of rectal diseases, in many of which there is a discharge upon the skin. I have been unable to find pruritus in any of these cases other than an

evanescent itching, except in those that have the skin infection; these are the persistent cases of pruritus ani.

A study of the chart in the original paper shows that of the nineteen cases whose examinations were recorded in 1911, all had pruritus ani with streptococcic infection of the skin about the anus; three had very small hemorrhoids; two had ulcers; five had diseased crypts; and three had hypertrophied papillæ. None of that series had fistula.

So far as these cases show, they prove that chronic pruritus ani is not dependent on any gross lesions of these parts.

The excess moisture of the parts seen in these cases is a sequel to the low grade inflammation of the skin resulting from the infection, and is not moisture from the inside of the rectum with proctitis as its cause.

The skin fissures seen in these cases result from the loss of vitality and elasticity of the tissues naturally following the infection and low grade infiltrative inflammation.

Since writing the first paper we have found that streptococci are in the superficial layers of the skin itself, as well as on the surface.

On account of the fact that the infection penetrates the skin, and that something about the patient has lowered the opsonin test for streptococci, we believe that relapses may occur. The opsonin test may not at first be increased to the extent that phagocytosis for this germ will remain normal after it has been raised by immunization with vaccines. I say this to each patient at the beginning, and advise that on the first relapse of itching after the treatment has been suspended, he should at once report for the making of a new culture and resume the vaccine treatment before infection has again become firmly established.

If this practice is followed we may be able finally to establish an immunity so complete that reinfection will not take place and the result will be a permanent cure.

At the present stage of this new work it is impossible to tell the patient how many treatments he must take or how long a time he must remain under observation.

The technique which we follow in making cultures and vaccines and in the treatment is as follows:

First, examine the patient carefully and record all local lesions and diseased conditions. This is followed by scrubbing the external anal skin with liquid soap and water and then with sterile water; after lightly drying the parts, the swab is rubbed

\*Read before the American Proctologic Society at Atlantic City, June 4, 1912.

over the pruritic skin, particularly over any place where fissures exist. Occasionally, I find it necessary to moderately scrape the skin with a curette, when I fail to obtain the bacteria in the ordinary way. These swabs are then sent to the bacteriologist who plates them on endo medium. The growth is examined after twelve hours, and we find it to be usually a pure culture of streptococci (generally *streptococcus fecalis*).

The differentiation between streptococci and other germs should be made by growing them in liquid media when we will find the streptococci in chains of three, four or more elements. They may further be grown on Gordon's series of carbohydrates which will differentiate the branch of the streptococcus family to which they belong. The streptococcus *fecalis* had been found most frequently.

A concentrated vaccine is made by transferring a colony from the Petri plate and allowing it to grow on slant agar for twenty-four hours. Wash it off with an average 1 c. c. sterile salt solution, drain into a homeopathic phial through cheese cloth, add an equal volume of 1 per cent. carbolic acid solution, then allow it to stand at room temperature twenty-four hours before using.

Of this autogenous vaccine begin with from two to four minims for the first injection (with aseptic precautions), depositing the vaccine immediately beneath the skin of the left arm, to test the susceptibility of the patient; if no reaction occurs within twenty-four hours, give double the dose the next day; otherwise wait until it has subsided, then give an injection in the other arm, increasing the dose slightly. I avoid an excessive reaction by not repeating until the previous general and local reactions have disappeared.

After using both arms and both groins, we begin again with the left arm and alternate in the same way.

These patients usually show improvement following the first severe reaction, consisting of local redness and swelling together with general malaise, headache, and at times a moderate fever. The reaction usually disappears in twenty-four hours. They describe the beneficial effects by saying that the itching has changed in character, being less intense, and if there is a desire to scratch, just a slight rubbing gives relief, while before the treatment they would scratch the parts until the skin was abraded and the blood ran; even then there was no relief.

Under the treatment as the itching decreases we find fewer streptococci in the cultures, and when the itching is relieved we find few or none. At this time we note phagocytosis increased for streptococci.

Cultures have been taken, as shown in the chart of control cases that have other rectal diseases, in order to learn whether streptococci are present when there is no pruritus. These cultures were negative in every instance.

I have been asked whether streptococci may not be found on the skin of any part of the body as well as at the anus, and have, therefore, taken a number of cultures from the buttocks of pruritic patients, ten inches away from the anus, under the same conditions that the other cultures were obtained, and no streptococci *fecalis* were demonstrated. These cultures were taken in Cases IV, VI, XIII, and XIX of my first series and in Cases XX and XXVI of the second series. The results must be considered as proofs that the general integument of these patients is not inhabited by streptococcus *fecalis*.

During the past winter I have received numerous letters from physicians asking more definite instructions as to the cultures and the making of vaccines. I have since had reports from several of the physicians and will quote them to some extent below. I find from these that mistakes in technique and misunderstandings of the details have caused some failures.

One physician writes that he had found staphylococcus in one of his cases and had given the patient autogenous staphylococcic vaccine injections. I immediately wrote asking him to test the culture out in liquid media as well as in the hard media; the result shows from his second letter that he then discovered streptococci to be present.

Quotation from second letter: "Acting upon a suggestion of yours some time ago my bacteriologist succeeded in getting a pure culture of streptococci from one of my cases. After the vaccine was prepared my patient refused to accept the treatment, because, from the previous injections of vaccine (from staphylococcus), he had such a violent reaction. The other patient I wrote you about became discouraged after the failure of the first injection to relieve him, and has not shown up for some time."

The reason in the second case was that staphylococcus vaccine was used instead of streptococcus.

The appearance of colonies of staphylococci and streptococci to the naked eye may be similar, and one may be mistaken for the other. They should be identified before making the vaccine.

In a report from another physician on the bacteria of a case of pruritus ani she states that the blood serum cultures showed: Large staphylococci, few, small staphylococci, many.

I have little doubt that if this physician had taken the so called small staphylococci, grown a colony in

liquid media or examined the growth in the condensation fluid of the culture, she would have found that the bacteria were in chains of four, five or more elements. If she had put them on Gordon's carbohydrate media they would probable have given the reaction for streptococcus fecalis, which, as I have already stated, is the branch of the streptococcus family most often found in these conditions. Several other physicians who investigated some of the cases made the same mistake in technique.

It will not benefit the patient to give vaccine injections of *B. coli* or staphylococci when they are not the cause of the pruritus. I believe there is little doubt regarding this or regarding the fact that *B. coli*, staphylococcus, or other bacteria may complicate a case. It will then be wise to prove this before beginning vaccine treatment by making an opsonin test, to learn whether phagocytosis is lower for any of these germs than normal. If the opsonin test is found to be lower than normal for more than one, it would be well in that case to give a mixed vaccine for a few treatments. In the event of both *B. coli* and streptococcic vaccine being used, the initial dose should not exceed one minim of each.

Reports are at hand from some physicians who have made bacteriologic tests, stating that their patients refuse to be experimented upon. This has no particular bearing upon my claims so far as the correctness of the etiology or value of the treatment is concerned.

I have given so many of these vaccine injections, without untoward results and with such marked benefits that I do not now look upon the treatment as experimental.

I have had a few of these refusals, but the majority of the patients show enough anxiety for relief from their unfortunate condition to be willing to accept even an experiment.

Another physician reported a case in which he made no bacteriologic examination and used stock vaccine with a complete failure as to results. He does not state how many injections were given nor any details regarding the case or its treatment.

Stock vaccines will not do at all because the streptococci in them are the pyogenes instead of the fecalis.

I quote from the letter of another physician:

"I have tested out the bacteriology in but one of these cases. In this I found you are correct; also the autogenous bacterine gave brilliant results."

Another physician writes:

"In reply to yours of May 16th would say that I did not use the autogenous vaccine, found streptococcus, staphylococcus, and colon bacilli on cul-

tures taken from the mucous membrane and affected areas. Gave streptococcus vaccine put up by ———; results were not satisfactory. If we do use autogenous vaccine, will be glad to advise you as to the results obtained."

I would again call attention to the fact that the stock vaccine does not contain the same branch of the streptococcus family.

I have examined my records of nine hundred consecutive cases of miscellaneous rectal diseases, and find that four hundred ninety were constipated, three hundred sixty-nine had hemorrhoids, and ninety-four had pruritus ani. Thirty-two of the pruritus ani cases have been examined bacteriologically, and in every case the streptococcus has been the predominating germ. These cases are reported in my two papers, the other sixty-two. I hope to have an opportunity to test bacteriologically during the coming year.

Of the ninety-four cases of pruritus ani occurring in the nine hundred case records examined, I find that:

50 were constipated, 5.5 per cent. of 900 cases examined.

21 had hemorrhoids, 2.3 per cent.

11 had anal growths, 1.2 per cent.

20 had ulcers, 2.2 per cent.

23 had diseased crypts, 2.5 per cent.

12 had hypertrophied papillæ, 1.3 per cent.

3 had polypi, .03 per cent.

3 had fistula, .03 per cent.

Skin conditions:

15 were pigmented, 1.7 per cent.

68 had excess of moisture, maceration and skin fissures, 7.5 per cent.

It seems to me that my records prove that none of these diseased conditions can be properly classed as causative of pruritus ani, but when present are coincidental.

One of the statements made by most authors is, that in the absence of any palpable lesion of the parts it is a neurosis. I do not agree with this, but believe that the neurosis may easily be the result of the pruritus.

The following reports are confined to the subsequent treatment and present condition of the cases reported in my paper of last year:

CASE I. This case was not treated prior to my report of June 1911.

September 19, 1911, the usual culture was taken. Bacteriologic report. External, streptococci.

He was treated with autogenous vaccine from September 25th until February 8, 1912, having in all fourteen injections.

February 8th another treatment was given, a culture taken, and the report was that there were no streptococci present. This was also true of a culture taken December 27, 1911. At the last report this patient was still without itching.

CASE IV. Had no itching during the summer of 1911, after the last treatment on May 9, 1911.

October, 1911, he had a slight relapse, at which time a new culture was taken. One culture was taken from the anal skin, and a few streptococci were found; a second from the skin ten inches distant and there was no growth on this culture. A streptococcic vaccine was made and the patient given two injections, the first on December 19th, the second January 23rd. He has remained free from itching since that time.

CASE V. Has been comfortable during the past year with no necessity for additional treatment.

CASE VIII. Returned for treatment January 12, 1912. The usual cultures were taken. Bacteriologic report: External, streptococci, many; B. coli., few.

I gave injection of autogenous streptococcic vaccine, beginning January 24th. Reactions occurred in the usual way, and his condition began to show

therefore asked to come to Syracuse for treatment, and I learned that the vaccine had been given directly into the gluteal muscle, and not close under the skin as I had directed.

The technique was changed, a good reaction produced, and the itching began at once to subside. After the fifth injection it gave him little trouble. February 26, 1912, he felt well and took a trip to Europe. He has had practically no itching since that time.

I show herewith a photograph of a very typical culture on a Petri dish of Case XIII. The large colonies are B. coli., the very small, streptococci fecalis. I show the photograph as being typical of the cultures in all the cases that I have reported.

CASE XIV. Was rather stubborn and reported, after my return from Los Angeles, the latter part of July 1911, that itching had begun again. A large number of streptococci were found in the culture and treatment was resumed July 27th, continuing in the usual way until February 9, 1912, when he had his twenty-fourth injection. Since then he has had no itching, and feels that he is entirely cured. Only time will prove this.

CASE XV. Was given no treatment prior to my return in July, 1911.

August 14th, 1911, a swab was taken which showed a pure culture of streptococci. Injections of autogenous vaccine were given in the usual way until December 20, 1911. Eleven injections were made, and on March 5th he reported no more itching and considers himself perfectly well.

CASE XIX. Has been a particularly stubborn one. There seems to be something that complicates it and interferes with the improvement which other cases experience. While this patient is much improved, and at times will go four or five weeks without itching, yet it returns too frequently for his comfort or to suit me. It is noticeable that when the itching is absent the streptococci are not found, and as soon as it begins, the cultures again show streptococci.

In this second series the bacteriology has not been carried beyond the first part of the culture; unless there seemed to be a complication. Dr. Meader did not deem it necessary to carry each culture through liquid media or Gordon's series of carbohydrates.

The above will explain why we have not recorded other bacteria on the bacteriologic reports, as was done in my first series.

I desire at this time to extend my sincere thanks to Dr. F. M. Meader for his invaluable assistance to me in all of this work.

(To be continued.)

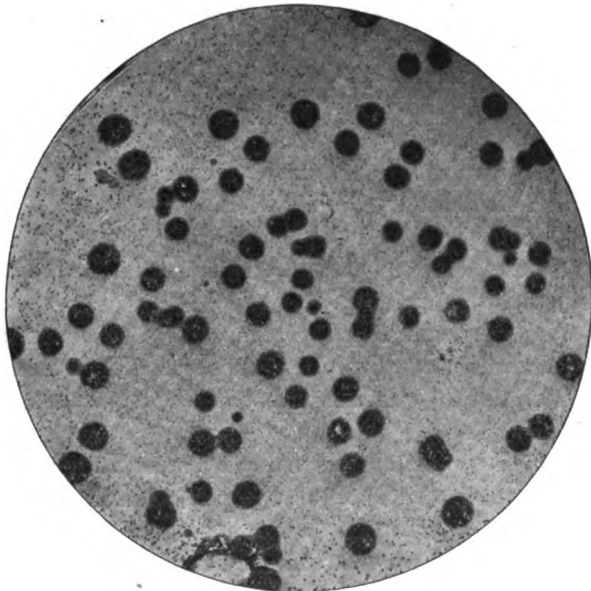


Fig. 1. Case XIII. Photograph of Petri plate taken from skin outside the anus, showing streptococci—fine colonies. B. coli.—large colonies.

improvement February 20th, following the fourth injection.

March 9th, he reported himself free from itching and has remained so to date.

CASE XIII. Was treated by an out-of-town physician for me last year. The effect was not beneficial, and I was unable to understand the reason, inasmuch as I was obtaining uniformly good results in the cases personally treated. The patient was

## IMMUNITY.

By J. C. SHAW, A.B., M.D., Holton, Kans.

Immunity is largely a relative term and is the converse of predisposition or susceptibility, or as we might say, pathogenicity.

An organism which produces disease is called pathogenic or infective, and the manner in which the disease is produced is called infection. All maladies which depend for their existence on bacteria are therefore infectious diseases. Just what the intimate relations of bacteria to pathological conditions are we can hardly say. Is it due to the presence and mechanical irritation of the bacteria or to the toxins produced by them, or to both?

Why it is that some individuals are susceptible and become infected by bacterial inoculation and others do not, is a question which has puzzled scientific minds for years and still we are delving into its unsolved mysteries with but little light ahead. But as the darkest time of the day seems to be just before the dawn, let us yet hope that by the untiring and unselfish efforts of our great and noble profession the day may open up clearer and clearer until we know what to do to make vital resistance not only equal to, but greater than, susceptibility.

Every physician at some time is asked the question: "Why is it that you who are exposed so often to infectious and contagious diseases do not acquire them?" "What do you do to keep from being attacked?" These and similar questions are asked of every physician and must in some way be answered, whether scientifically or not. I might inquire: "What do *you* do when called to see a case of smallpox or diphtheria so that you will not become infected?" These are pertinent questions to ask that concern not only the laity but also the profession.

All living organisms, whether animal or vegetable, at least all the higher forms, are likely at some time or under certain conditions to be infected. This is termed susceptibility. On the other hand every animal seems to have some power of resisting parasitic implantation. This we term immunity.

In general it is a difficult task to give a clear and comprehensive reason of the nature and meaning of immunity, why one individual is exempt and another is not. This has been a common ground of contention among chemists, pathologists, biologists and physiologists, with no positive and definite conclusion.

Many theories have been advanced, most of which have been merely opinions because based

only on the results of inaccurate, insufficient, or unscientific research, and in the light of further investigation and in the flight of time they have been proven to be fallacies. Some of these theories have been deduced from a single selected case.

While speaking of immunity we must constantly remember our limited knowledge of the finer cellular processes, of tissue chemistry, and of vital reactions and reactivity. Nature has given us the key to immunity by eliminating in her own way the chance of re-infection after recovery from an infectious disease, and from this we have concluded that the inoculation by animal sera will be preventive or curative. After an individual has successfully combated an infectious condition he is more resistant to further attacks of the same disease. In some cases a permanent immunity is established, while in others it will be only temporary. There are exceptions to all rules, for while one attack of smallpox ordinarily confers immunity it does not always do so, as cases are on record where individuals have had a second attack. The same is true, to a greater extent, of measles and scarlet fever. A single attack of diphtheria does not confer immunity, as it may occur a second or third time in the same person.

Immunity to bacterial infection is often a natural quality of a race or of an individual. This is what we term natural immunity. The opposite is natural susceptibility.

Natural susceptibility may be transformed into acquired immunity by an attack of disease or by inoculation with vaccines or sera, as is shown by vaccination for small-pox or by the prophylactic use of diphtheritic antitoxin, serum for typhoid, etc.

There are a great many things we know to be true and yet we cannot give a scientific reason why they are true. For instance, field mice are very susceptible to glanders, while house mice are almost completely immune; the Jersey cow is more susceptible to tuberculosis than any other breeds of the bovine tribe; the negro, through long years of residence in yellow fever and ague districts, has acquired a marked resistance to these diseases which is almost equal to immunity.

How can we account for this? Only through the fact of heredity and the survival of the fittest, and a gradual acquired immunity through long continued ancestral exposure to these infections.

I well remember when a child, how with the

rest of the boys of the family we would play for hours at a time in the fine dust of the road, and many a time we have put the fine dust on a bruised toe or heel and into the cracks or grass cuts between the toes, to stop the bleeding or to heal them. Why did we not get tetanus? I don't know, and only theoretical explanations can be given. The tetanus bacillus is anaerobic, and possibly in these superficial bruises and cracks the oxygen was not excluded, consequently the organisms did not find suitable pabulum and no inoculation took place. So much for one theory. I am inclined to believe that through long years of ancestral exposure an immunity was acquired which made us able to resist an ordinary amount of the infection. In other words, the fluids of the body, and especially the blood serum of an individual with long continued ancestral exposure to such infection, contains neutralizing or antitoxic substances capable of rendering inert or of arresting bacterial activity.

I believe that the serum of the blood is the great factor of our organism by which we are enabled to resist, so often and so successfully, infection to which we are constantly exposed. Observation has shown that diphtheria antitoxin is found in the serum of about thirty per cent. of normal horses, in about fifty per cent. of children, and about eighty-three per cent. of adults examined (Wassermann). So far as has been discovered, the antitoxic substances present in the healthy body are identical with those found in actively immunized animals (Wasserman).

Where does this antitoxic or protective material, or material which confers immunity, come from? The substances found in the blood possessing germicidal activities or bactericidal functions, and called alexins by Buchner and defensive proteids by Hawkins, are according to these scientists the source of our protective immunity. Others claim that phagocytosis is the agency of protective immunity. Among these Metchnikoff, in 1884, published a series of articles on his observations on the behavior of certain of the mesodermal cells of lower animals toward insoluble particles present in the tissues of these animals. These observations and researches resulted in his doctrine of phagocytosis, the principle of which is that the wandering cells of the animal organism, the leucocytes, have the power of taking up, rendering inert, and digesting micro-organisms encountered in the tissues. He believes that in this way immunity from infection in most if not in all cases can be explained. He believes

that susceptibility to a disease or immunity from infection is a matter between the invading bacteria on the one hand and the leucocytes of the blood on the other.

This leads us up to the subject of opsonins. It has been found that leucocytes can be increased or diminished in different ways, thus increasing or diminishing phagocytosis. Some observers have found that the injection of serum from immunized animals would greatly increase the power of the leucocytes to destroy bacteria in the blood, but it was only comparatively recently that some investigators have been able to give an explanation or a plausible theory for it. These have demonstrated that there are bacterio-trophic substances found in the blood which so act on the bacteria as to prepare them for digestion or, as it were, food for the phagocytes. While this has been demonstrated, no explanation has been given of the reason for it or where these bacterio-trophic substances originate.

Immunization increases the opsonins, though they are found to some extent in normal animals.

These interesting phenomena have given rise to the so-called opsonic index.

I think this theory will hold true of a localized infection, where it has been demonstrated that the phagocytes gather around in increased numbers to combat the invasion, and it is significant that the degree of resistance shown by the organism is in proportion to the intensity of the local inflammatory reaction. Knowing this to be a fact we do not doubt that an increased leucocytosis is a process of decided advantage to the organism. As the staphylococcus is the main cause of local inflammatory reactions or infections, phagocytosis undoubtedly plays the chief part in immunization or in overcoming the infection once invasion takes place in a localized area. Phagocytosis is largely a phenomenon of natural resistance, both in natural and in acquired immunity, and I think this applies to localized infections like boils, bruises, cuts, abscesses, etc., but not to general septicemic conditions.

We have all noticed that during an epidemic many people do not become infected and we are inclined to consider them immune from the disease, but there may have been no real exposure to the infection, or certain external conditions required for infection may have been absent.

Personally I am inclined to believe there is a broad field for scientific investigation in the chain of ductless glands and their internal secretions. Just how this is to be accomplished I cannot say.



but that it is worthy of thorough research I do not doubt. There have been so many discoveries in this field in recent years that like in the case of electricity we cannot even conjecture what the future will reveal.

We know that the ductless glands exert a controlling influence over many of the metabolic activities either of individual tissues or of the tissues in general, as is shown by the results of their removal or of pathological involvement. As regards removal, we find death following a complete extirpation of the thyroid gland, but if the accessory thyroids and parathyroids remain, enough secretion is produced to maintain an equilibrium of metabolism and the animal will live. On the other hand, in pathological conditions of the thyroid we may have faulty congenital development with resultant cretinism, or we may have hyper- or hypothyroidism with all its concomitant symptoms due to an over-supply or the lack of a substance necessary to normal tissue metabolism.

We have all noticed in cases of myxedema or sporadic cretinism a general disorder of nutrition from loss of function or of atrophy of the thyroid gland, and also that in such conditions the organism is a suitable field for infection.

All ductless glands have an internal secretion necessary to cell growth and function, and it is reasonable to suppose that many of the glands having ducts also secrete substances which are taken up by the blood or tissues and not eliminated in the ordinary way. This is manifest in the testes of the male and in the ovaries of the female, the secretion of the one giving strength, courage and virility, and that of the other, form, symmetry, and womanly character.

In conclusion I can do no better than to quote from one of our standard authors as he expresses very clearly my own conclusions on this subject.

"The mechanism of immunity, whether acquired or natural, specific or general, is still hidden from us; and we cannot as yet lift the veil which is still interposed between us and the facts. We cannot enter into all the deductive hypotheses to which scientific enthusiasm gives expression. From enthusiasm to imposture the path is perilous and slippery."

"We must, therefore, receive the discoveries of the day with the open and impartial mind of the historian, trusting that the future, perhaps the near future, will arrange them in their proper order and proportions, so that retrospectively we may learn their lesson.

"At present the thinker stands bewildered before the problem of immunity; and when two recent writers, Freund and Grosz, assert that a close relation appears to exist between the process of coagulation and serum immunization, we may remember that we are equally ignorant of the minor working of either process.

"It is because of these limitations of our understanding that I have passed over numberless observations, such as local immunity, or the production of immunity by bacteria or chemical substances not specifically related to the disease in question. Yet the recent past has revealed so many marvelous facts unto us that we may confidently look to the future for more light.

In the preparation of this paper I have consulted a number of books and authors—Abbott, Allbutt, Jordan—and am indebted to them. My own observation and clinical experience in hospital and private practice are the basis.

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## RECTAL HINTS.

By JEROME WAGNER, M.D., New York.

In operating for fistula in ano do not hesitate to cut the sphincter, provided the line of incision is at a right angle to the muscle fibers. Incontinence will not result unless the muscle is divided obliquely.

Appendicostomy is indicated in inflammatory conditions of colon, knowing as we do, the futility of trying to reach these lesions with high rectal irrigations. The inflammation may be of a severity sufficient to require shutting off of the fecal current. In these cases an artificial anus is the most effective procedure, giving the affected area a chance to heal without the constant irritation of fecal matter. It is often surprising to see how quickly improvement or a cure takes place.

To control rectal hemorrhage knot together two strips of gauze, twist one in a spiral about the other, and introduce this into the rectum through a speculum, the knotted end first. Remove the speculum and pull the end hanging free, from the anus. In this way a solid plug of gauze is formed in the rectum.

Many fistulæ fail to be cured by operation because all the tracts are not opened. To obviate this, inject before operation a 50 per cent. solution of methylene blue and hydrogen peroxide into the fistulous opening. Thus, the smallest ramifications of the tract are stained blue and cannot possibly be overlooked.

## PUBLISHED

BY THE

## International Journal of Surgery Co.

FRANK C. LEWIS, M.D., Managing Editor.

100 William St.—Woodbridge Building.  
New York, N. Y., U. S. A.

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## Editorial Department

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NEW YORK, AUGUST, 1912

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### ANESTHESIA AS A SPECIALTY.

The organization of a National Society of Anesthetists on the occasion of the last meeting of the American Medical Association marks an important advance in the evolution of anesthesia into a distinct specialty. Next to the surgeon himself the anesthetist occupies the most responsible position in the performance of a surgical operation, and the fate of the patient will in no small measure often depend upon his skill and ability. This being so, it is surprising that in our country the administration of ether or chloroform is still so largely entrusted to those of limited knowledge and experience. Even in many of our larger hospitals conditions in this respect are far from satisfactory. As Dr. R. H. Ferguson pertinently states (*Long Island Medical Journal*, July, 1912), "Surgical anesthesia, for the welfare of the patient as also for the reputation of the surgeon and hospital, demands serious consideration." To select an untrained interne or a nurse for this work adds to the responsibility of the surgeon, hampers him in his own duties by diverting his attention, and enhances the risk to the patient. Aside from those exceptional instances where a nurse through vast experience has become an expert, we quite agree with Ferguson's definition that "no one except a medical man who is experienced

in administering anesthetics can be called an anesthetist." It must be confessed that England has set us an example that we have been slow to follow. For many years interest in this field has been promoted there by societies of anesthetists, and most of the larger hospitals have professional anesthetists on their staffs with well-defined duties and responsibilities—a policy that could be adopted by us with advantage. While the services of such an expert would be available in all cases demanding especial skill and experience, they would moreover prove invaluable in the training of internes for this work. The multiplication of professional anesthetists will, no doubt, also exert a beneficial influence upon the surgery done outside of hospitals; in many of our large cities they are already in constant demand and the importance of this specialty is fully recognized. Much more attention should be given in our medical colleges and post-graduate institutions to imparting a thorough knowledge of anesthesia, so that the general practitioner will be better equipped than he is at present to undertake this work, if he has not had the benefit of a hospital training, and this is particularly desirable in the large field of emergency surgery. Enough has been said, however, to show that there is a legitimate demand for a specialty in anesthesia as a means of not only simplifying the duties of the surgeon but adding to their efficiency.

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### CONTRIBUTORY FACTORS MAKING FOR BETTER POSTOPERATIVE RESULTS.

It appears to the writer that in the analysis of the reason for the more encouraging postoperative results of to-day, as compared with those obtained in the not very long past, the profession has failed to fully recognize the important, though indirect influence exerted by certain factors other than those due essentially to "medical and surgical advance." That the more creditable postoperative results at the present time are chiefly attributed to those agencies which make for surgical efficiency is too well known to the profession to require more than simple mention, but it is nevertheless true that the fact that advanced surgical diseases of chronic nature and neglected acute surgical lesions are not so commonly met with as formerly, is in itself an important contributory condition.

Inquiry into the reasons for the lessened prevalence of extreme types of surgical lesions will

reveal that patients present themselves for treatment at an earlier stage of their ailment than they have been wont to do in the past, and that this has come about through various influences which are to be discussed herein.

The increased intelligence of the public upon medical matters through the medium of the public press and public lectures accounts for the greater appreciation of the importance of seeking and adopting proper professional advice early in the course of a disease; the stronger confidence in the efficacy of surgical measures; the effacement of the unjustified belief that the hospital is a place where patients are experimented upon and the knowledge that it is equipped with everything that will facilitate surgical technic; the recognition of the fact that the thoroughness of operative procedures does not depend upon the financial or social standing of the patients. All these factors encourage the sufferer to readily consent to enter the hospital and submit to an operation. Again the present day economics takes into consideration the commercial value of good health, and, therefore, those afflicted are forced to seek quick relief, while in the past they may have been more inclined to lead the life of an invalid. This factor is especially noticeable in the case of women, since they have so largely entered commercial life. Possession of good health to-day is not only a matter of personal comfort but also one of dollars and cents.

Furthermore, the fact that the public has learnt that unmarried and virtuous girls may become affected with lesions of the pelvic organs has brought about a change in that it has increased the number of such individuals referred to the surgeon for operation. This in itself serves to prevent the development of more extensive and serious conditions were the girl to wait until after marriage before coming under surgical care.

It will be seen therefore that these various factors tend to induce sufferers to seek professional advice much earlier in the course of their ailments than heretofore. This means that they are less apt to neglect themselves and that operative intervention is undertaken at a time when the prognosis as to postoperative results should be more favorable, and not as was formerly so frequently the case, when the patient submitted to operation only when the condition became extreme and the vital resistance had been reduced to a minimum.

From this it also follows that the extent of opera-

tive procedures is markedly less, and hence that the patient's vitality is not taxed to the utmost during the period of convalescence, which is much shorter for the same reason.

May we not then reasonably assume from what has been stated above that these factors are not negligible quantities in estimating the value of the various elements which favorably influence postoperative results? If this be so it may then be deduced that an educational propaganda among the masses upon medical matters should be encouraged and be carried out under proper auspices.

The fear of hospitals may be much lessened by according to poor and rich gentle and sympathetic attention on the part of everyone connected with their care. Operation should not be advised nor undertaken unless fully indicated, and a glowing prognosis not given unless fully justified, for should it fail to materialize the patient and those interested in him will discredit surgery. When a person suffers from a condition which is amenable to medical as well as to surgical treatment the choice should be left to him or her, and no attempt be made to insist upon one or the other according to the special inclination of the physician or surgeon.

Again, the physician should be neither an alarmist nor an unwarranted optimist; he should give his advice to the best of his knowledge in a tone of firm conviction. Patients frequently neglect to submit to operation because of the vacillating manner in which they are advised, and naturally go on wasting valuable time by going from one physician to another until their condition is too far advanced for surgery to offer any hopes of recovery. Much of this delay would also be obviated if the physician would absolutely refuse to treat those who do not follow his advice when there is no other that can be given. Dilatory tactics encourage patients to look upon such advice as not fully essential to their welfare. Kindly consideration for their feelings is an essential in the makeup of a physician, yet this may be carried too far if he fails to squarely state the reasons for urging operation; especially is this attitude frequently assumed in the case of sufferers from a malignant growth. It is incumbent upon the practitioner to advise operation as soon as the diagnosis of malignancy is made, provided the case offers any hope of relief.

ADOLPH BONNER, M.D., Brooklyn, N. Y.

## Department of Railway Surgery

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### STATIC ELECTRICITY, ONE OF THE MOST REMARKABLE AND ONE OF THE MOST USEFUL OF OUR THERAPEUTIC AGENTS.\*

By J. C. WALTON, M.D.,

*Physician-in-Chief to the Hydro-Electrotherapeutic Sanatorium, Richmond, Va.*

The conclusions arrived at in this paper are based solely upon actual clinical experience with the static machine, not only in my own practice, but as an assistant to some of the prominent teachers engaged in this line of work in our metropolitan centers.

The amount of material for clinical study and observation has been considerable, probably amounting in the aggregate to thousands of cases.

With the exception of acute injuries, such as sprains, strains, contusions, subluxations, etc., the cases treated were mostly of a chronic nature.

The results of treatment in most instances were very gratifying, so much so that I could not possibly do this work without the aid of a good static machine.

While the growth in the application of electricity in the commercial world is one of the marvels of the day and a vastly interesting subject, it is its uses in medicine and surgery that especially demand our consideration.

The time has passed when a physician who uses electricity in his practice is tabooed as a charlatan and irregular, for to-day the broad minded and intelligent members of our profession are beginning to realize the wonderful possibilities of a sane and rational application of this, one of our most promising therapeutic agents. It is not, however, to be expected that many of our general practitioners can devote the time and money necessary to satisfactorily do this work, but it is their duty to understand the conditions that can be benefited by electricity, so that they may refer them to men who are properly equipped for this line of treatment, for by so doing they will help their patients and the profession as well, and thus fight effectively the charlatan and the grafter and help to establish electrotherapy on a broad and scientific basis.

The electron theory of matter so ably taught by Sir Oliver Lodge and many other eminent scientists, reveals that all matter is composed of negative and positive electricity, and nothing else.

Electricity has always been considered as a form of energy, just as heat is. There is but one kind of electricity, but by means of mechanical and electrical devices it is possible for electricity to manifest itself in various ways, the difference being one of degree and not of kind.

Three forms of electricity are generally used in medicine: First, static or frictional; second, galvanic or direct; third, faradic, interrupted, or indirect.

Static electricity is electricity in a state of tension, and is produced by static or frictional machines.

Two kinds of static machines are used by electro-therapeutists, one with glass plates and one with fiber plates, each having their advocates.

I have in my offices a twenty-plate V. H. & T. B. glass plate machine (thirty-four inches in diameter); under the most favorable conditions the maximum output is three hundred m. a. I have a sixteen-plate glass machine W & B which will generate the same amount of current, but this is much better constructed than the other in every way. I have also a twelve-plate, fiber, high speed Baker machine (thirty inches in diameter plates), which when running at half speed (one thousand revolutions to the minute) easily generates a current from zero to 1,000 m. a., which is the maximum current ever needed in autocondensation work. The Baker machine gives a picture of remarkable clearness and accuracy and is by far the most useful and valuable for all work.

The differences in the electro-motive force depend upon the speed of the revolving plates; the fiber can be safely run at a speed of 2,000 revolutions to the minute, while it is not safe to run the glass plate machine exceeding 500 revolutions.

In administering static electricity you have, as in all other forms of electricity, your polarity to consider, the negative and the positive poles, the former being stimulating and sometimes irritating, the latter tonic and sedative.

The chief characteristics of the static current as compared with current electricity is the comparatively small volume, but immense pressure, the current being of a very high potential, i. e., high voltage and small amperage. The amount of current is so small that 100,000 volts or more can be used on the patient with absolute safety.

\*Read at Seventeenth Annual Meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

The static current is uni-directional and the flow is from the positive to the negative pole. If a machine is producing a spark gap of one inch in length, the voltage is calculated at 30,000 volts. Multiply the length of the spark gap in inches and you can estimate the approximate total voltage.

Galvanic electricity may be compared to the water in a wide river, faradic to the water from a nozzle, and the static to the escaping steam (Dugan).

The static machine was invented in 1667 by Otto von Guericke, of Germany. This apparatus laid the foundation for the influence machine now in vogue. In 1734 Abbe Nollet drew the first spark from the human body. Prior to 1880 the static machines had very little therapeutic value for they were frictional machines. The only methods of treatment by this apparatus were the spray, the bath, the spark and the Leyden jar. In 1880 Prof. W. J. Morton, of New York, brought to this country a new form of machine known as an influence machine, and this is the form now used by physicians.

To Dr. Morton we are indebted for the static induced current, which is the first high frequency current ever used—the Morton wave current. In fact, Dr. Morton is regarded as the Edison of the medical world. The currents known as the d'Arsonval, the Teszla, the Oudin and wireless, are all modifications of Morton's induced current.

Lack of time will allow mention of only a very few of the many indications for the use of static electricity.

*The X-Ray.* As a diagnostic aid especially in fractures, dislocations, in diseases of the bones and joints, and also for keeping an accurate and legal record of accident cases the skiagraph is an indispensable ally to the modern surgeon. This phase of the subject is so obvious to all present that it would be a matter of supererogation to discuss it before this body of representative surgeons. I would rather urge on you a more general and routine use of the ray in your work as an aid in differential diagnosis.

In the long distant past when the use of the ray was in its infancy, the speaker was familiar—to some extent a particeps criminis—with three cases of chronic sciatica, in all of which the symptoms did not differ in any material way from the usual classical signs and there were no reasons to suspect malignancy. Yet later developments showed one of the cases to be due to cancer of the lower bowel, and this patient never showed any

bowel symptoms until later in the disease. The other two cases of supposed sciatica were found to have sarcomatous disease of the shaft of the femur, fracture occurring later when the ray showed malignancy.

These patients were referred for treatment of sciatica to some of the best men in the country, and as nothing pointed to malignancy, it is needless to say that the early use of the ray in the last two cases would have saved us all very serious embarrassment. The lesson they teach is to avoid carelessness and routinism, to make a careful examination in all cases, and when in doubt resort to the ray.

The laws of Virginia allow the presiding judge to appoint his own experts in insanity cases and those of so-called brain storms, etc. The decisions of this board of medico-legal experts are accepted as final and as the last word in these cases. If this custom were universal in all the States we might be spared the humiliation of seeing so called medical experts testifying pro and con in the interests of the respective sides upon which they are employed. As the x-ray is often manipulated for fraudulent purposes by unprincipled scoundrels, it is of vital importance that its employment should be restricted to honest and capable operators. These swindlers will often substitute the plates taken from another case, and they have been known, when compelled to refer the case to another operator, to inject with a long needle down to the bone iodoform and glycerine in the line of the supposed fracture. This fraud can be easily detected by taking another picture at right angles to the alleged fracture, when it can be easily lifted off the bone.

However important x-ray diagnosis may be, its therapeutic use is equally so. It can be employed to sterilize and stimulate infected and septic wounds. In malignant cases it should be used both before and after operation to prevent recurrences and to limit the operative field by destroying any outlying foci of the disease, excepting only in rapidly developing cases of malignancy, and here it should be thoroughly applied after operation to prevent recurrences.

The ray will frequently cure superficial and skin cancers with a minimum of scarring or disfigurement, and it also has proven useful in sarcomatous conditions.

In tuberculosis of the spine, joints, bones and glands it is considered by so eminent an authority as John B. Murphy to be superior to all other agents.

In lupus, in chronic and parasitic diseases of the skin, in lymphoma, leukemia, and certain gynecological conditions, it has become one of our standard remedies.

For therapeutic purposes the ray from the static machine is preferred by most operators because there is less risk of serious and vicious burns and your tubes are less likely to become punctured.

*The Morton Wave Current.* This is probably one of the most valuable of all electrical modalities. The current produces alternate contraction and relaxation of the tissues (electric vibration), and induces tissue drainage. It is an ideal application in stasis, congestions, inflammations, and in all cases where there is a weak and relaxed condition of the parts. This is the current par excellence for sprains, strains of the muscles, tendons and ligaments. In the so called Erichsen, or railway spine, spinal neuroses, etc., the early application of this current will not only cure your patient but save the companies you represent not only the worry of litigation, but large sums of money.

I have repeatedly seen bad sprains of the ankle joint (one of the most painful and unsatisfactory conditions when treated by the ordinary methods) promptly relieved by one or two applications of the wave current to the affected joint, followed by the static brush or resonator sparks. Yet we are gravely informed by some of our surgeons that electricity is contraindicated in the above mentioned conditions.

Possibly some of these gentlemen will be surprised to know that the wave current will relieve or cure 85 per cent. of cases of senile enlargement of the prostate gland, and also that gonorrheal prostatitis can be cured by the Titus high vacuum prostatic electrode applied through the rectum, using in this case the local high frequency currents.

The static spark is really similar to a miniature stroke of lightning, and is indicated in a great variety of chronic painful conditions, especially in chronic rheumatism, neuritis, myalgias, and it will not infrequently relieve cases of long standing pain and stiffness that have resisted other lines of treatment for years.

The static brush discharge and the high frequency effluve from the high class vacuum tubes are exceedingly rich in chemical rays, and laboratory tests have shown them to be very destructive to all forms of pathogenic germs. These applications will sterilize and disinfect infected and sep-

tic wounds and, also, by increasing hyperemia and phagocytosis promote rapid healing by the improved circulation in the parts.

*The Morton Induced Current.* This is the original high frequency current. It is useful in constipation, painful neuroses, and in gynecological work. It will produce muscular contractions after the failure of both the faradic and galvanic currents; it relieves local congestions, local pain, and increases secretion; it also produces muscular contraction and local vibratory effect.

I regret that time will allow only mention of the constitutional effect of the wave and the high frequency currents in chronic diseases, especially in arterial diseases and in all conditions of deranged and disordered metabolism. As this paper, however, has already exceeded its prescribed limits and is intended to be merely suggestive, if I have said anything that may tend to arouse and stimulate your interest in this valuable addition to our armamentarium I shall feel amply repaid for my labor.

I wish in closing to emphasize the fact that the most valuable of all the electric modalities, i. e., the wave current, the static induced, the static spark, and the brush discharge, as well as the ideal high frequency current for autocondensation work, can be obtained only from a good static machine.

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## INJURIES TO THE ELBOW-JOINT.\*

By HERBERT P. COLE, M.D., Mobile, Ala.

Treatment of injuries to the elbow-joint is undertaken with the end in view of obtaining the greatest possible functional activity in this member, so essential to the body mechanism. Unfortunately, the large percentage of cases presenting limited functional results is a constant reminder of our improper treatment. As the first essential in treatment is a correct diagnosis, and as this depends upon knowledge of the surgical anatomy and the various diagnostic methods at our hand, it will be the object of this paper to recall briefly a few important features of the surgical anatomy as applied to our methods of diagnosis of elbow-joint lesions.

*Essential Surgical Anatomy of the Elbow-Joint.* Examining the uninjured elbow to ascertain the normal anatomical relation of the injured joint, we will note what has been termed the "three bony points." Normally the large prominent in-

\*Read before the Association of Southern Railway Surgeons, Washington, D. C., June 12th, 1912.

ternal condyle of the humerus, the olecranon process of the ulna, and the external condyle of the humerus will lie approximately in a straight line in the extended elbow, transversely to the long axis of the limb, the tip of the olecranon lying slightly above it. This line should be as important to diagnosis of lesions of the elbow as the line of Nélaton is to lesions of the hip-joint. Any variation must be taken into consideration in the matter of diagnosis. Also note that when the normal elbow is flexed at a right angle these three points are situated on the same plane on the posterior surface of the upper arm.

The head of the radius should be normally palpated and rotated at a point one-half inch below the external condyle. Variations in this location or rotation indicate lesions of the radial head or shaft.

*The Angle of Deviation or Carrying Angle.* The extended forearm of the male presents an angle of outward deviation of from one to nine degrees and in the female of from fifteen to twenty-five degrees. Disappearance or increase of this angle indicates lesions of the inner or outer condyle of the humerus, injuries to the low epiphyseal line of the humerus, rupture of the lateral ligaments, or lesions of the head of the radius or ulna or both.

It is only occasionally that an individual presents no angle of deviation.

*Movements.* Movement in the elbow-joint is normally that of extension and flexion through an angle of one hundred and forty degrees. Lateral movements of this joint are abnormal and indicate rupture of the inner or outer ligaments, fracture, or dislocation.

*Measurements.* The transverse measurements of the normal "three bony points" compared to those of the injured joint frequently determines the presence or absence of fracture. The acromio-olecranon measurement in the normal arm compared to that of the injured one frequently determines the presence or absence of a fracture near the joint.

*Methods of Examination.* We consider it a safe procedure to anesthetize all patients suffering from elbow-joint lesions, no matter how insignificant the injury may appear to be. Employing the normal elbow as a guide and comparing its "three bony points," the location of its radial head, the intracondylar and the acromio-olecranon measurements, and its carrying angle with those of the injured joint are usually sufficient to establish the diagnosis.

*Radiographic Examination.* This should be a supplement, though not a substitute for manual examination both before and after treatment. It is necessary to bear in mind several obvious facts in the interpretation of radiographic findings. The articular ends of bones in children are frequently cartilaginous, and the negative may be transparent about the joint except for an occasional ossifying epiphysis. Thus it may readily be understood that fractures of wide extent may be indistinguishable in the negatives taken in the young. It is essential that we recall the appearance of the ossification centers, that the appearance of these isolated shadows on the negative may not be mistaken for fracture fragments. While ossification of the center of the humeral shaft occurs in fetal life, ossification of the capitellum, or lesser head, does not begin until the third year, and ossification of the internal condyle does not appear until the fifth year, of the trochlea until the twelfth, and of the external condyle until the fourteenth year; all uniting to form an epiphysis at the lower end of the shaft. The epiphysis does not unite to the shaft until puberty. The upper end of the shaft does not begin to ossify before the fifteenth year and ends in the seventeenth year. There is a common center of ossification for the coronoid process of the ulna with its shaft, while the olecranon process has a separate center and is cartilaginous until the eighth year, uniting with the shaft at puberty.

Finally, we note that it is frequently necessary to obtain radiographic negatives at various angles to determine fracture or separation, the location of foreign bodies and the situation of a dislocation. The negative taken after the lesion has been treated is often indispensable in order to determine the proper approximation of the parts. It is essential in establishing the nature of the injury to consider the possibility of the presence of previous lesions such as exostoses, deformities, dislocations, erosions, or foreign bodies in a joint.

The absence or exaggeration of the carrying angle may be a normal condition for the individual or the result of an early rachitis, osteo-chondritis desiccans, osteomyelitis, or some of the rheumatoid affections. In all cases a careful elicitation of the previous history is essential.

Last, though not least in importance, it is essential that we recall the correlation of even the slightest elbow traumatism to co-existing infective processes. The slightest of peri- or intra-articular injuries are not infrequently the nidus for pathogenic organisms pre-existent in the blood. The former presence of a syphilitic, gonorrheal or tubercular in-



fection is frequently a matter of medico-legal importance in relation to joint injuries.

**Conclusions.** We assume that a working knowledge of the surgical anatomy of the elbow joint and the correct interpretation of radiographic findings are essential to the correct treatment of elbow lesions. We feel that a thorough examination of all elbow cases will lead to more correct diagnosis and a constantly increasing percentage of excellent functional results from the treatment of these lesions.

202 Conti street.

### ORGANIZATION: EACH SURGEON AS A FACTOR.

By F. A. WEBB, M. D., Calvert, Ala.

The slogan of success along all lines of human endeavor is organization. Combinations of capital, labor unions, political parties, religious movements, scientific associations, must all organize for any great purpose to make progress and to achieve ultimate success. No chain is stronger than its weakest link. No organization is stronger than the weakest individual that enters as a unit. This is true of our organization as an association of surgeons of the Southern Railway. Each surgeon is a factor, or a unit, and just in proportion to his worth, as a man and a surgeon, is the strength of our organization. If this be true, how important then that each of us ask and answer the question: "What are we worth as individual factors to our organization or association?"

The Association of Surgeons of the Southern Railway is justly proud, and has no cause to blush for shame; when we review our past history, the noble, unselfish work accomplished, we can say, without contradiction, that the objects written in our constitution have been achieved, and to-day we meet with no regrets for the past and with brighter hopes for the future. The stability, the usefulness for the future, all depends upon our organization, each surgeon as a factor; hence, my reason for bringing this subject before you for consideration. To be a member of this association, appointed as a surgeon by one of the best railway systems of the country, is not only an honor, but a great privilege, a great responsibility. On the one hand, each of us represents an association whose aims are to develop and cherish all the true and noble elements of the medical profession, social and fraternal, the advancement of science and surgery, the relief of suffering, and the uplift of humanity. On the other hand, we

each represent the Southern Railway, not only as surgeons, but as Mr. W. W. Finley, its president, has said: "In the moulding of public sentiment to the upbuilding of this great system." Privilege and honor, as before stated, bring great responsibility, and that responsibility rests upon each surgeon as a factor in the advancement and upbuilding of our organization, the Association of Southern Railway Surgeons.

The world is a wonderful chemist, to be sure,  
And detects in a moment, the base from the pure.  
We may boast of our claim to genius or birth,  
But the world takes a man for just what he's worth.

As the world estimates the individual, so with the association, so with the Southern Railway. Each individual surgeon will be judged by just what he is worth. What the world demands and wants is a man that can prove himself *a power* in the position he holds. The world demands *vital, forcible, active, determined* men, so does our organization, so does the Southern Railway. In the advancement of the organization we represent, to be factors for good or for power, to be *vital, forcible, active members*, we should concentrate our talents in the advancement of the objects both of our association and of the railway we represent. This concentration of talent and heart means *high ideals of duty, unselfish devotion, unremitting work*. It is the duty of each surgeon to attend our annual meetings to get new inspiration, to renew old friendships and take an active part in the discussions. Show our appreciation of our chief surgeon, Dr. W. A. Applegate, our loyalty to him and to the Southern Railway, by our interest, by falling in line, always following as he commands. Stand by our faithful and efficient secretary, Surgeon J. U. Ray, giving him our individual and collective support for the success of the association; preparing ourselves for better work, greater usefulness by a mutual interchange of reports and papers; in a word, get inspiration so that by organization each can be a factor for the upbuilding of the association.

In conclusion, I would say that each member, each surgeon is a factor in our organization. Therefore, let us strive to be joyous in our work, moderate in our pleasures, faithful in our friendships, energetic, but not excitable or in haste, enthusiastic but not fanatical, loyal to truth, ever open-minded to the newer light; to discourage shams and rejoice in all that is beautiful and true; to do our work and live our lives so that neither shall require defense nor apology; to honor no one simply because rich or famous and despise no one, however hum-

\*Read at Seventeenth Annual Meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

ble or poor; to be gentle and considerate toward the weak, respectful yet self-respecting toward the great, courteous to all, obsequious to none; to seek wisdom from great books and inspiration from all that is good, to invigorate our minds with noble thoughts, as we do our bodies with sunshine and fresh air; to prize all sweet human friendships and seek, at least, to make some one happy, to have charity for the erring, sympathy for the sorrowing, cheer for the despondent; to be indifferent to none, helpful to all; to leave the world a little better off because of our association, and to pass away when we must, bravely and cheerfully, with faith in God and good will to all our fellow-men. As Ella Wheeler Wilcox beautifully exhorts:

Use all your hidden forces. Do not miss  
The purpose of this life. And do not wait  
For circumstances to mould or change your fate.  
In yourself lies destiny.  
Let this vast truth cast out all fear,  
All prejudice, all hesitation—  
Know that you are great.

## Surgical Gleanings

**Operation for Perforated Gastric and Duodenal Ulcer**—Dr. O. L. Lauper (*Zentbl. f. Chir.* No. 9, 1912) states that in ulcer of the pylorus or duodenum the method of choice is suture plus gastroenterostomy, although the latter in conjunction with tamponade may suffice. If the patient's strength however does not permit of any prolonged mode of suture, stitching a piece of omentum over the perforation followed by tamponade is advisable. Sometimes, however, simple approximation of the edges of the ulcer by means of one or two button sutures, followed by careful application of a tampon, may fulfill the requirements. To facilitate suture freshening of the edges of the perforation is of service. Excision of a gastric ulcer is always to be considered as a substitute for the other methods.

**Tincture of Iodin Catgut**—Hoffman and Budde (*Deut. med. Wochensh.*, No. 13, 1912) have made investigations of iodine catgut in the Hygienic Laboratories of the University of Berlin. It was found that catgut could be sterilized as reliably in 5 per cent. alcoholic tincture of iodine as in 1 per cent. watery solution of iodine and potassium iodide. From a practical standpoint the iodine tincture catgut was equal to that prepared according to the Claudius method. The strength of the gut was not impaired if it was preserved stretched in a 5 per cent. iodine tincture. On the other hand, unstretched filaments untwisted in the tincture with a reduction of their strength of 50 or more per cent. In studying the action of iodine upon catgut in the various methods of preparation hydriotic acid was always formed. As this readily combines with albuminous bodies, and any solution

of iodine which has once been used contains large quantities of this acid, it is advisable to employ only a freshly made tincture. To obtain an iodine catgut that will contain but small quantities of iodine and therefore will be more easily absorbed, the unstretched gut, sterilized by heat, is placed for thirty minutes in a 10 per cent. tincture of iodine, to which 3.5 per cent. potassium iodide has been added.

**Treatment of Abscesses of the Middle Palmar Space**—As Kanavel takes pains to emphasize (*Infections of the Hand*, Lea & Febiger, Publishers, Phila.) the middle palmar space is a grave responsibility; the diagnosis is difficult, and, on the other hand, the danger of delay is great. It is probably better to err upon the side of radicalism, however, than conservatism, owing to the liability of complications in the ulnar synovial sheath, the bones, and the joints.

Any method of opening the space exposes certain tissues to injury, and it is a question of choosing the least dangerous route. It cannot be opened upon the ulnar side, owing to the fear of infecting the ulnar bursal sheath; a flap of the palmar fascia should not be dissected up from below, as has been suggested, making a sort of trap-door, as it were, since the infection lies below the tendons, and to make such an opening and then drain anteriorly between the tendons would result in unnecessary adhesions.

The least injury and the most efficient drainage of the middle palmar space can be secured by an incision along one of the three lumbrical canals leading into this space; i. e., the little finger, ring finger, or the middle finger canals. That anal will be chosen which is already markedly infected, either because it has been the atrium of the infection or because it has been secondarily involved. If the surgeon has any choice in the matter, that between the ring and middle finger gives the most satisfactory drainage. An incision is made into the canal and carried one-half inch above its end up into the palmar space; i. e., one-half inch proximal to a line joining the proximal end of the distal flexion crease with the distal end of the middle flexion crease, or, grossly speaking, a thumb's breadth and a half up into the palm. This brings the incision between the tendons. An artery forceps is thrust under the group of palmar tendons and the blades opened, satisfactory drainage ensuing. A small strip of gutta percha or gauze saturated with vaseline will keep the opening from closing for a day, after which time it will not be needed. The author credits Dr. F. A. Besley for the suggestion as to this method of incision. It is remarkable how rapidly cases will recover under this treatment.

**Injuries of the Thoracic Duct**—Dr. D. G. Zesass (*Deut. Ztsch. f. Chir.*, Bd. 113, Hft. 3-4) has collected 48 cases of injury of the thoracic duct during operations, to which he adds another. The injury in most cases occurred during the re-

removal of tuberculous or carcinomatous cervical glands, the duct being wounded in its course in the left supraclavicular fossa. A lymphorrhea usually followed at once and lasted for several weeks or months. Apart from five cases which terminated fatally, trauma of the thoracic duct in its cervical portion is not as a rule followed by serious complications. As regards treatment suture of the wound is the method of choice, and ligation of the peripheral end is only to be considered where this is impossible. If both these measures are impracticable, tamponade must be employed.

**Enterostomy as a Lifesaving Measure in Peritonitis and Intestinal Occlusions.**—Dr. A. Krogius (*Deut. Zeitschrift f. Chir.*, Bd. 112, Hft. 4-6) reports that during a period of almost ten years enterostomy has been done in 107 cases operated upon for various abdominal affections in the Surgical Clinic of Helsingfors. The object of the procedure was to establish a temporary fistula for the removal of stagnating intestinal contents, thus preventing threatening death from obstruction. In 37 cases enterostomy was resorted to as a primary measure, with 13 cures, and in 70 cases as a secondary procedure a few days after the first operation, with recovery in 23. In 42 cases the condition was one of peritonitis originating in the vermiform appendix and in 35 cases intestinal occlusion was present. To be effective the enterostomy must be done above the site of obstruction of the bowel, usually in the small intestine. A cecal fistula can prove useful only in case of obstruction of the large intestine. By adopting the Witzel method the fistula can be established high up in the small intestine without any risk of resulting inanition.

**Operative Removal of Intramedullary Spinal Tumors.**—Dr. W. Roepke (*Arch. f. klin. Chir.*, Bd. 96, Hft. 4) concludes: 1. An intramedullary spinal tumor, if encapsulated, can be removed without any special risk of injury through a posterior incision in the median line of the cord down to the growth, after which it is carefully enucleated. 2. The high albumin percentage and yellow color of the cerebrospinal fluid, with slight or no increase of cells, are of great significance in connection with the clinical symptoms in the differential diagnosis between spinal tumors, multiple sclerosis and spinal syphilis. 3. A normal condition of the cerebrospinal fluid persisting long after the operation is an evidence of the successful removal of the tumor.

**Perforating Injuries of the Larynx.**—Dr. N. Boljarski (*Beitr. z. klin. Chir.*, Bd. 77, Hft. 2) has met this injury in 0.1 per cent of 21,000 cases of various trauma in the hospital with which he is connected. Of the 25 cases reported the majority constituted attempts at suicide (21). In 24 of these the vessels were not injured, and in the majority of wounds the larynx was penetrated through the thyro-hyoid membrane, thyroid or cricoid cartilage. The author's mortality was 25 per cent. as compared with Witte's 42.7 per cent. In 11 cases treated by primary suture there were only two deaths, healing taking place by

primary union in 9. For this reason the author is inclined to regard primary suture as the method of choice in knife wounds of the larynx, as it leads to complete restoration of function within a short time. Transverse wounds of the larynx are to be united by layer sutures, preceded by prophylactic tracheotomy.

**Incarcerated Treitz Hernia.**—Dr. J. Gobiet (*Wiener klin Wochensch.*, No. 12, 1912) relates in detail a case of incarcerated Treitz, or retroperitoneal, hernia successfully treated by operation. In this variety of hernia the protrusion takes place in the recessus duodeno-jejunalis. This recess is bounded by Treitz' ligament (inferior duodenal fold, which in its free margin contains the inferior mesenteric vein). It is very characteristic of this hernia that the lower mesenteric vein courses in the free margin of the anterior wall of the peritoneal pouch. The treatment is always operative, and from his previous experience the author concludes that slight degrees of incarceration can usually be relieved by simple traction upon the prolapsed gut. In rare instances where a firm constriction of the intestine is present, it is usually necessary to ligate the inferior mesenteric vein, although frequently it is thrombosed. As a vital indication ligation even of the intact vessel may be required if the intestine cannot be freed in any other way. The only reliable radical operation consists in splitting the hernial sac outwardly from the ring and then removing the anterior wall. If the vein is thrombosed there is no obstacle to this procedure. If, however, it is intact, the vein should not be interfered with, the open sac being stitched to the abdominal wound and drained.

**Surgical Treatment of Duodenal Ulcer.**—Dr. F. N. G. Starr (*Canad. Med. Assoc. Jour.*, March, 1912) calls attention to the following points in performing gastrotenterostomy for duodenal ulcer: 1. Get a piece of jejunum as near the beginning as possible. 2. Be sure to have the clamp, if you use a clamp, on a line with the mesentery of the jejunum. 3. Scratch with the point of the knife the midline of the clamped portion of the stomach wall and of the jejunal surface, before placing the first or peritoneal row of linen sutures, in order that one may be sure of the line of incision when the time comes to open the lumen. 4. After you have put in your posterior through and through row of sutures of No. 2 chromic catgut, put in a third row of No. 1 or No. 2 sterile catgut to obviate the possibility of hemorrhage from the posterior cut edge. This is a part you cannot see at the end of the operation, and to have it safely secured may save much trouble and increase your peace of mind. 5. Secure the anastomosis accurately and without any rotation to the margins of the opening in the meso-colon, and thus prevent the possibility of hernia into the lesser sac. 6. Don't unnecessarily handle the organs, and don't, above all things, pull and jerk at the organs, or damage will be done to the vessels of the mesentery and a fatal issue will be the reward.

**A New Operation for Tabetic Gastric Crises.**—Professor Hochenegg (*Deut. Ztschr. f. Chir.*, Bd. III, Hft. 4-6) believes that in some cases of gastric crises in locomotor ataxia disease of the pneumogastric or its nucleus is the primary cause, and therefore suggests section of the pneumogastric as a substitute for Foerster's operation (resection of the sensory portion of the tenth, eleventh and twelfth dorsal nerve roots). This operation has been performed by him in two cases, the pneumogastric nerves being divided below the diaphragm at a point above their ramification. In view of the fact that experiments on animals have shown that section of these nerves is followed by atony of the stomach and by pyloric spasm, the author established a gastric fistula according to the method of Witzel and introduced a drain. The relief afforded in the first case was very striking, as evidenced by the cessation of vomiting and pain, while in the second case the results were unsatisfactory. This operation has the advantage over Foerster's method of being less dangerous.

**Surgery in Epilepsy.**—Dr. W. A. Bryan (*South. Med. Jour.*, Apr. 1912) says that certain cases of true epilepsy are curable by operation. The percentage is small—2 to 8 per cent. Certain other cases may be benefited by surgery in reduction either of the number or severity of the attacks—possibly twice the number susceptible to cure. The majority are not benefited at all, and a very small percentage are made distinctly worse. The greater the ancestral taint and the longer the time since the onset of the disease, the less the chance of cure. Epilepsy is not essentially and wholly a surgical condition. Even when surgery is done it should be understood by all concerned that the treatment is only begun, and the most painstaking regulation of the patient's life must be ordered and supervised by competent attendants for a long period of years afterwards. The correction of all traumatic defects at the time of their occurrence, if they could with reasonable assurance be suspected of initiating epilepsy, would prevent many cases of epilepsy.

**Rupture of the Abdominal Wall.**—Dr. A. G. Stewart (*Brit. Med. Jour.*, May 25, 1912) reports a unique case of spontaneous rupture of the abdominal wall after a severe attack of coughing in a woman, seventy-four years old. Several coils of small intestine and omentum protruded through a rent about 2 inches in length. Bleeding was taking place from a wound of the mesentery. The patient was anesthetized, a piece of omentum ligatured and cut off, the rent in the mesentery closed with continuous catgut suture, the intestine replaced, but the widely separated recti not approximated owing to her collapsed condition. The abdomen was closed by superficial and relaxation sutures after removal of some redundant skin. Recovery was uneventful. As regards his experience with postoperative rupture the author has made the rather surprising observation that in nine cases which he has come across the accident usually occurred in the second

week, and not in the days immediately following operation, the average being on the tenth day. It frequently occurs in stout individuals with much subcutaneous fat (one of the cases being in a woman of 18 stones), and in those debilitated, for example, by carcinoma. Straining for any reason, such as postoperative vomiting or bronchitis, tends to favor the accident, while, lastly, the use of catgut as an abdominal suture has been said to favor its production. As regards the usual site, in one case the incision was through the right rectus in a gall-bladder operation, in another in the middle line above the umbilicus, while in the remaining seven it was in the middle line below the umbilicus. In all 9 cases secondary suture was done as soon as possible under general anesthesia. Of the 9, 6 recovered and 3 died.

**The Operative Treatment of Purulent Meningitis.**—Dr. S. Kostlivy (*Archiv f. klin. Chir.*, Bd. 97, Hft. 3) advises that to thoroughly expose the inflamed meninges an extensive craniectomy should be performed. Sufficient bone should be resected over the site of suppuration to uncover this area as well as the surrounding healthy membrane. In this way only can adequate drainage be established. Of the two cases of diffuse meningitis in which the author operated, one was the result of a chronic otitis, while in the other it resulted from suppurating subdural hematoma. Both patients recovered from the operation, although the second later succumbed to a general cerebral atrophy.

**Radical Operation for Uterine Prolapse.**—Dr. H. Hans (*Zentralbl. f. Chir.*, No. 16, 1912) suggests the following method which he has employed in two cases of uterine prolapse: After extirpation of both tubes a large wedge-shaped portion is cut from the body of the uterus, the apex being directed toward the cervix. The resulting uterine flaps are then turned back and united at the upper margins, respectively, to the right and left recti by means of mattress sutures. Below they are sutured to the fascia in the same manner. The uterus is thus elevated, the entire procedure being done extraperitoneally, and as the tubes have been removed, there is no chance of pregnancy.

**Tuberculous Lymph-Nodes.**—Dr. J. Clark Stewart (*St. Paul Med. Jour.*, July, 1912) writes encouragingly of the value of the x-ray in the treatment of tuberculous lymph-nodes. Since seven years ago he has treated quite a number of cases of discrete nodes of the neck, clinically diagnosed as tuberculous and this confirmed by tuberculin tests. Without softening they have been reduced in size and have remained several years without recrudescence. This experience leads him to urge the x-ray as a substitute for radical removal in early cases at least, this being aided by prompt evacuation of softened nodes and the best hygienic conditions possible. Radical removal is to be reserved for massive advanced cases or for charity work where the time element is important.

## Monthly Index of Surgery and Gynecology

- Abdominal Drainage in the Treatment of Peritonitis (Lancet, June, 15, 1918). C. Wallace, London.
- Abdominal Hysterectomy, Advantages of (Bost. M. and S. Jour., July 11, 1918). F. B. Lund, Boston.
- Acute Diverticulitis of the Sigmoid Flexure of the Colon (An. of Surg., July, 1918). C. A. Powers, Denver.
- Acute Inflammation of the Long Bones (An. of Surg., July, 1918). R. G. Le Conte, Philadelphia.
- Acute Pancreatitis with Very Extensive Fat Necrosis (An. of Surg., July, 1918). L. W. Hotchkiss, New York.
- Adhesion of the Colon (Jour. A. M. A., June 22, 1918). M. L. Harris, Chicago.
- Appendicitis Dilemma and the Pre-operative Diagnosis (Brit. Med. Jour., June 15, 1918). W. Ewart, London.
- Arthrodesis and Arthrolysis, Indications for (N. Y. Med. Jour., June 22, 1918). A. Lorenz, New York.
- Aseptic Intestinal Anastomosis (Jour. A. M. A., July 20, 1918). W. D. Gatch, Indianapolis.
- Aseptic Surgical Access to the Pituitary Body and its Neighborhood (Jour. A. M. A., June 29, 1918). L. L. McArthur, Chicago.
- Bilateral Resection of the Jaw for Prognathism (Surg., Gyn. and Obst., July, 1918). W. M. Harsha, Chicago.
- Cancer of the Uterus (Bost. M. and S. Jour., July 11, 1918). F. Cobb, Boston.
- Cancer of the Uterus, Hopeful Aspects of (Bost. M. and S. Jour., July 11, 1918). W. P. Graves, Boston.
- Cancer of the Uterus, Surgical Treatment of (Bost. M. and S. Jour., July 11, 1918). C. A. Porter, Boston.
- Cancerous Degeneration in Chronic Leg Ulcers (Jour. A. M. A., July 6, 1918). W. S. Gottheil, New York.
- Cholecystenterostomy, Does it Divert the Flow of Bile from the Common Duct? (Canad. M. A. Jour., July, 1918). E. Archibald, Montreal.
- Club-Foot, an Operative Plan for the Correction of (Charl. Med. Jour., July, 1918). J. Graham, Durham, N. C.
- De Keating-Hart Method of Fulguration (Med. Rec., July 6, 1918). W. S. Bainbridge, New York.
- Destruction of Vesical Papilloma by Means of High Frequency Cauterization (Long Isl. Med. Jour., July, 1918). B. Harris, Brooklyn, N. Y.
- Diagnosis and Surgical Treatment of Indurated Ulcers of the Stomach and Duodenum (Long Isl. Med. Jour., July, 1918). A. H. Bogart, Brooklyn, N. Y.
- Diagnosis of Diseases of the Urinary Tract by the Combined Use of the Cystoscope and the X-Ray (Alb. Med. An., July, 1918). E. M. Stanton, Schenectady, N. Y.
- Dilatation of the Duodenum in Relation to Surgery of the Stomach and Colon (Jour. A. M. A., July 18, 1918). J. C. Bloodgood, Baltimore.
- Dilatation of the Large Bowel (Jour. A. M. A., July 18, 1918). A. D. Bevan, Chicago.
- Diverticula of the Urinary Bladder, the Surgical Treatment of (Jour.-Lanc., July 1, 1918). W. Lerche, St. Paul.
- Drainage After Intrathoracic Operations, with Special Reference to the Esophagus (An. of Surg., July, 1918). W. Meyer, New York.
- Elimination of Lockjaw (Med. Rec., June 29, 1918). D. Benjamin, Camden, N. J.
- End-Results in Gallbladder Surgery (Surg., Gyn. and Obst., July, 1918). B. B. Davis, Omaha.
- End-Results in 68 Cases of Operation for Brain Tumors (An. of Surg., July, 1918). W. J. Taylor, Philadelphia.
- End-Results of Fractures of the Shaft of the Femur (An. of Surg., July, 1918). W. L. Estes, South Bethlehem, Pa.
- Enterospasm and Colic from the Surgical Point of View (Brit. Med. Jour., June 22, 1918). J. Swain, Bristol.
- Enterostomy, the Value of, in Ileus (Mo. Cyclop., July, 1918). L. H. Taylor, Washington, D. C.
- Factors of Safety in Operating for Exophthalmic Goiter (Jour. A. M. A., July 6, 1918). C. H. Mayo, Rochester, Minn.
- Fallopian Tubes, Diseases of the (Jour. A. M. A., July 13, 1918). H. J. Boldt, New York.
- Fractures, Symposium on (Jour.-Lanc., July 15, 1918). W. S. Fullerton, St. Paul; O. W. Parker, Ely; A. E. Wilcox, Minneapolis; W. E. Harwood, Eveleth; B. S. Adams, Hibbing, Minn.
- Gastroenteroptosis, When is Surgery Indicated? (Surg., Gyn. and Obst., July, 1918). J. Ranschoff, Cincinnati.
- Hemorrhage into the Peritoneal Cavity Caused by Accidental Rupture of the Ovary (An. of Surg., July, 1918). A. Primrose, Toronto.
- Hernias of the Ovary, of the Fallopian Tube, and of the Ovary and Fallopian Tube (Surg., Gyn. and Obst., July, 1918). A. P. Heineck, Chicago.
- Hysterectomy (Jour. A. M. A., July 18, 1918). J. B. Deaver, Philadelphia.
- Incomplete Abdominal Surgery (Jour. A. M. A., June 22, 1918). H. G. Wetherill, Denver.
- Indications for Abdominal Cesarean Section with Technic of the Operation and an Analysis of 352 Cases (Am. Jour. Obst., July 1918). R. McPherson, New York.
- Indications for Operations in Diseases of the Digestive Tract (Med. Rec., July 18, 1918). M. Einhorn, New York.
- Infection of the Kidney, What the General Practitioner Should Know Concerning (Jour. Ind. S. M. A., July 15, 1918). D. W. Eisendrath, Chicago.
- Injuries of the Pancreas (Am. Jour. Surg., July, 1918). H. Fischer, New York.
- Intestinal Complications in Gynecologic Operations (Jour. A. M. A., July 20, 1918). L. S. McMurtry, Louisville.
- Intestinal Stasis and Ptoxis of the Colon, Causes and Surgical Relief of (Lanc.-Clin., June 29, 1918). J. E. Pirrung, Cincinnati.
- Intestinal Stasis, Some End-Results in (Surg., Gyn. and Obst., July, 1918). L. E. Barrington-Ward, London.
- Intra-Abdominal Pressure. Its Importance in Maintaining Static Equilibrium and the Necessity of Conforming to its Laws in the Restoration of Organs to their Normal Positions (Jour. A. M. A., July 6, 1918). J. R. Goffe, New York.
- Intratracheal Insufflation Anesthesia (Meltzer-Auer). Observations on a Series of 316 Anesthetics with the Elsberg Apparatus (An. of Surg., July, 1918). C. H. Peck, New York.
- Ligation of the Thyroid Vessels in Exophthalmic Goiter (Jour. M. A. Ga., July, 1918). W. S. Goldsmith, Atlanta.
- Ligation or Excision of the Ovarian or Deep Pelvic Veins in the Treatment of Puerperal Thrombophlebitis (Jour. A. M. A., July 20, 1918). R. R. Huggins, Pittsburgh.
- Ligation or Excision of the Pelvic Veins in the Treatment of Septic Thrombophlebitis of Puerperal Origin (Jour. A. M. A., July 20, 1918). C. J. Miller, New Orleans.
- Limitations and Scope of Office Treatment in Gynecology (Therap. Gaz., July 18, 1918). G. E. Shoemaker, Philadelphia.
- Mediastinal Growths, the Diagnosis of (Col. Med., July, 1918). J. N. Hall, Denver.
- Mesenteric Chyle Cysts (Surg., Gyn. and Obst., July, 1918). E. Friend, Chicago.
- Nephrectomy. A Study Based on the Records of 112 Cases (An. of Surg., July, 1918). A. G. Gerster, New York.
- New Method of Suturing Bloodvessels (Jour. A. M. A., July 6, 1918). J. S. Horsley, Richmond.
- Nitrous Oxide in Major Surgery, the Present Status of (Calif. S. Jour. Med., July, 1918). M. Botsford, San Francisco.
- Oblique Inguinal Hernia, Surgical Treatment of (Med. Rec., June 22, 1918). F. Torek, New York.
- Operability of Cerebral Endothelioma; Report of a Successful Case (Bos. M. and S. Jour., June 20, 1918). G. L. Walton, J. Homans, Boston.
- Operative Treatment in Joint Fractures (Jour. A. M. A., July 20, 1918). F. J. Cotton, Boston.
- Prolapse of the Rectum, the Pathogenesis, Anatomy and Cure of (Surg., Gyn. and Obst., July, 1918). A. V. Moschowitz, New York.
- Prolapse of the Stomach and Intestines (Louisv. Mo. Jour. Med., July, 1918). L. Frank, Louisville.
- Prostatectomy, the Time for (Am. Jour. Urol., July, 1918). B. Tenney, Boston.
- Remote Metastases Following Cancer of the Breast (Bost. M. and S. Jour., July 4, 1918). J. C. Hubbard, Boston.
- Renal Varix (Surg., Gyn. and Obst., July, 1918). P. M. Pilcher, Brooklyn, N. Y.
- Resistance of the Patient as a Guide to Operative Procedure (Jour. A. M. A., July 13, 1918). W. B. Chase, Brooklyn, N. Y.
- Results of Operations, Especially Abdominal, Performed on the Principle of Anoci-Association (Jour. A. M. A., July 13, 1918). W. Crile, Cleveland.
- Rotation Treatment of Scoliosis (N. Y. Med. Jour., July 6, 1918). A. M. Forbes, Montreal.
- Sacro-iliac Displacement (Am. Jour. Med. Sc., July, 1918). J. K. Young, Philadelphia.
- Safety in the Operative Fixation of Infected Fractures of Long Bones (An. of Surg., July, 1918). H. Lilienthal, New York.
- Sarcoma of the Breast (Col. Med., July, 1918). C. A. Powers, Denver.
- Simplified Technique for End-to-End Intestinal Anastomosis, with Report of 28 Cases (Surg., Gyn. and Obst., July, 1918). A. L. Sorensen, New York.
- Subclavian Aneurism, the Treatment of (An. of Surg., July, 1918). E. Eliot, Jr., J. W. Jameson, J. A. Corscader, New York.
- Suppurations of the Urinary Tract (Bost. M. and S. Jour., July 4, 1918). H. Terry, Providence.
- Surgery from a Pediatric Standpoint (Med. Rec., June 22, 1918). L. Kerr, Brooklyn, N. Y.
- Surgery of Bones and Joints (Jour. A. M. A., July 20, 1918). L. W. Ely, Denver.
- Surgery of the Cervix Uteri (Surg., Gyn. and Obst., July, 1918). H. P. Newman, San Diego.
- Surgery of the Long Bones (An. of Surg., July, 1918). J. E. Moore, Minneapolis.
- Surgical Lesions of the Stomach and Duodenum (O. S. Med. Jour., July, 1918). W. D. Haines, Cincinnati.
- Thoracotomy under Intratracheal Insufflation Anesthesia (Va. Med. Semi-Mo., July 12, 1918). H. H. Kerr, Washington, D. C.
- Thymus Gland, Surgery of the (An. of Surg., July, 1918). C. H. Mayo, Rochester, Minn.
- Tincture of Iodine the Best Surgical Disinfectant (N. Y. Med. Jour., July 20, 1918). F. T. Woodbury, Fort Screven, Ga.
- Tomato Joint, the (An. of Surg., July, 1918). R. W. Johnson, Baltimore.
- Treatment of the Defect Occasioned by Partial Excision of the Inferior Maxilla (An. of Surg., July, 1918). S. Stillman, San Francisco.
- Tropical Abscess of the Liver, Report of 28 Cases of (Calif. S. Jour. Med., July, 1918). R. Smith, Los Angeles.
- Tubercular Joints, the Early Diagnosis and Treatment of (South. Pract., July, 1918). P. F. Eve, Nashville.
- Tuberculosis of the Bladder, Ureter and Kidney (An. of Surg., July, 1918). A. Maclaren, St. Paul.
- Tuberculous Glands of the Neck, the Surgical Treatment of (Det. Med. Jour., July, 1918). R. E. Balch, Kalamazoo, Mich.
- Tuberculous Joint Disease, General Rest in (Northw. Med., July, 1918). J. C. Schappe, Butte, Mont.
- Ulcerous Lesions of the Tongue (Brit. Med. Jour., June 8, 1918). J. H. Evans, London.
- Uterovaginal Prolapse in Elderly Women, Technic of Operation (Jour. A. M. A., July 22, 1918). G. B. Somers, San Francisco.
- Ventral Hernia Following Laparotomy, the Operative Treatment of (Old Dom. Jour. Med. and Surg., July, 1918). B. L. Wyatt, K. L. Buckner, Bridgeport, Tenn.
- Wertheim's Operation for Cancer of the Cervix Uteri (Brit. Med. Jour., June 15, 1918). J. D. Malcolm.
- X-Ray Treatment of Grave's Disease (Brit. Med. Jour., June 8, 1918). W. H. Hooton, Leeds.

# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

SEPTEMBER, 1912

No. 9

## Original Articles

### NOTE ON THE VESICAL SPHINCTERS.

By G. FRANK LYDSTON, M.D., Chicago.

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The division of the sphincters of the bladder and their description by anatomists and surgical writers into "true and false" sphincters is an inheritance which has been handed down to us by generation after generation of authors and surgeons. The false sphincter has been described as the circular muscular fibers at the prostatic-vesical orifice. This internal or alleged "false" sphincter has been claimed to be of very slight importance in urinary control. The external sphincter or cut-off muscle of Cruveilhier, comprising the perineal muscles and the circular muscular fibers of the membranous urethra has been described as the "true" sphincter vesicæ, upon the proper functioning of which bladder control, it is generally claimed, depends.

In my various writings for many years past I have called the attention of the profession to the fallacy of the old nomenclature and description of the sphincters vesicæ. I had followed for some years in teaching genitourinary diseases the old idea regarding the sphincteric control of the bladder, when a case occurring in my own practice convinced me that this teaching was wrong. This case was one in which the entire floor of the urethra was destroyed from the mid-perineal region to the internal sphincter vesicæ. The anterior rectal wall corresponding to the floor of the urethra had been destroyed from the internal sphincter vesicæ to the sphincter ani. A sound in the bladder could be seen via an anal speculum from the sphincter ani to the internal sphincter vesicæ. The prostate had been practically destroyed by the absorption pressure of a calculus weighing nearly nine hundred grains and a secondary abscess. I was astonished to note that not one drop of urine involuntarily escaped from the patient's bladder. I subsequently observed, and this is a fact which

every perineal prostatectomist has undoubtedly noted, that even if the membranous urethra has been divided and the prostate completely removed no fluid in most cases escapes from the bladder until its cavity is entered through the so-called "false" sphincter.

In another case I removed the prostate, which was so hard that I suspected carcinoma until the subsequent microscopic examination of the tissues proved the benignancy of the tumor. The fibrosis was so pronounced that I was compelled to remove the prostate piecemeal, capsule and all. The vesical orifice surrounded by the external sphincter was plainly to be seen in the process of removal of the prostate. I inserted a large drainage tube, which I withdrew on the third day. Complete retention of urine occurred, and I was obliged to reinsert a tube. This case alone should prove my point.

I have operated upon cases in which suprapubic section and division of the vesical neck alone were necessary to relieve retention. As is well known, we have cases in which sclerosis of the vesical neck exists with little or no enlargement of the prostate. In these cases division of the vesical neck is absolutely necessary in order that retention may be relieved. In one of my cases there was a normal old man's prostate, i. e., an atrophied organ. The patient, however, had twenty-nine ounces of residual urine and a sacculated bladder. I explained to him the probable inevitable incontinence of urine which would follow operation. I explained also the inevitable outcome of the case if unoperated. The prognosis seemed especially clear in view of the fact that the bladder was in a septic condition and the kidney already involved in a low grade of chronic pyelonephritis. The operation consisted of suprapubic section, the passage of a grooved director from within downward beneath the inferior segment of the obstructing prostatic-vesical ring, and division of the latter. The prostate proper was not interfered with, and obviously the membranous urethra was not disturbed. The division was made with the galvano-cautery, and only such tissues involved as lay upon and above

the director. It was as clean a division of the vesical sphincter as could be imagined. Incontinence resulted in this case, although there had been no interference with the prostate—or such remnant of it as existed—the membranous urethra, or the perineal muscles, i. e., the so-called “cut-off muscle” of Cruveilhier.

I have, from time to time, been somewhat insistent in making the point involved in this article, but I am free to say that what I have thus far said has had comparatively little effect in modifying the customary teaching of the anatomy and physiology of urinary control.

In conclusion, I wish to sum up the results of my observation upon the vesical sphincter as follows: 1. The so-called “true sphincter” of the bladder is purely auxiliary. 2. The so-called “false sphincter” is the true sphincter, and the important factor in urinary control.

### **“SLIDING HERNIA” WITH REPORT OF A CASE.**

By ROBERT E. MOORE, M.D., Brooklyn, N. Y.

The first case I wish to present is one of sliding hernia of the cecum. My reason for offering it is the rarity of the condition and the method devised extemporaneously at the time of operation for its radical treatment.

This type of hernia receives but scant mention in most of the text-books on surgery and is not referred to at all in many of them. Bryant and Buck, Vol. 8, refer to the subject as follows: “Another instance of absence of sac is seen in those parts \* \* \* inguinal hernia or femoral hernia, which are called sliding hernias, or hernia par glissement. The colon on either side may slide into such an inguinal or femoral canal by escaping from its own meso-colon, and hence be devoid of peritoneum wholly or in part.”

American Text-Book, page, 904: “According to the most recent observations a cecocoele with an incomplete sac is rare.”

Rose and Corlies, p. 1065: \* \* \* “A few indisputable cases in which the serous envelope was incomplete in a so-called cecocoele.”

In none of the books consulted is any special operative procedure mentioned.

The conditions presented differ so materially from those in the ordinary inguinal hernia that the operative methods and care for the latter are not applicable here. The chief difficulty consists in that the posterior wall of the hernial sac is formed by the peritoneum covering the anter-

ior surface of the cecum or sigmoid and its mesentery, while this portion of the intestinal tract lies in the inguinal canal, but completely behind and outside of the sac and intimately and inseparably attached to its posterior wall. Evidently, then, the sac cannot be transfixed, ligated and excised in the usual way, for this would involve the removal of the herniated portion of gut and its mesentery. In other words, the cecum, appendix and attached portion of ileum do not descend into the inguinal canal within a preformed peritoneal sac, but that portion of the parietal peritoneum between the base of the cecum (i. e., its mesenteric attachment) and the internal abdominal ring is dragged into the canal, forming part of the fundus of the sac, and draws along with it the cecum and the mesentery, which in turn constitute the posterior wall of the sac and its neck.

Case History.—The patient was a man, aged thirty-two, married. The family history was negative; the personal history presented two important points: (1) Marked alcoholism. (2) Previous operation at Long Island College Hospital for right inguinal hernia, in December, 1904. The hernia had existed for six years before this primary operation and did not return for two years.

Patient complained of a rupture on the right side of four years' duration, gradually getting larger and causing more pain and discomfort. A truss completely retained it; but after trying three different makes and experimenting with them a dozen or more times, and failing to get a truss which while comfortable would retain the recurrent hernia, he gave up in disgust.

Examination: Large, right inguinal hernia, indirect, completely reducible, descending into the scrotum. External ring large. Scar of former operation about three-quarters of an inch above Poupart's ligament. Other points in general examination unimportant.

Operation: On October 1st, under anesthesia, the usual oblique incision was made above Poupart's ligament, and medially from the scar of the previous incision. Dense cicatricial tissue was encountered, attaching the scar to the margin of the external ring. The skin was freed and the inguinal canal opened in the usual way by splitting the aponeurosis of the external oblique. The internal oblique was separated from Poupart's ligament at its normal height. The cord had apparently not been transplanted, and lay behind a large hernial sac, so that conditions presented exactly resembled those of ordinary indirect inguinal hernia, save that no cremaster



muscle was to be seen. The sac was easily lifted from the canal and separated from the cord. An effort was now made to clear from the sac the rather dense fibrous tissue which enveloped it. It was possible to separate entire an outer fascial covering. This left the sac anteriorly fairly clean, but posteriorly there appeared to be a dense fibrous covering rich in bloodvessels. In attempting to strip this off by the aid of forceps a tear was made into what was immediately recognized as smooth muscle tissue, and the exact nature of the hernia was for the first time suspected. The sac was then opened on its anterior surface and these suspicions confirmed. The cecum, elongated to about four inches in length, formed the posterior wall of the sac; it was empty and collapsed. The leaves of its mesentery were widely separated and spread from its lateral surface to complete the posterior half of the sac. The peritoneum had been stripped likewise from the posterior surface of the caput to within about one-half inch from the tip, so that practically the whole of the posterior half of the cecum was devoid of peritoneal covering. An enormous appendix and a portion of the ileum were also within the sac.

A large normal appendix was removed. Two oblique incisions through the lateral walls of the sac were made, running from a common point in the fundus just beyond the caput to the inner and outer margins of the internal ring; thus leaving the anterior half of the sac, which resembled in every particular the anterior half of the usual hernial sac. This was cut away at the junction of the neck and the peritoneum lining the abdominal cavity. Posteriorly was left: The cecum, covered on its anterior surface with normal peritoneum but bare posteriorly save for fibrous tissue and bloodvessels; and the two triangular wings of peritoneum reflected from the lateral margins—one on each side—of the cecum. These wings were folded backward, and the free borders sewed together behind the cecum and its vessels to within about an inch of the margin of the internal ring; thus forming a complete peritoneal investment for the caput and its vessels, but leaving still exposed a triangular area on the posterior surface of the cecum near the internal ring. The anterior half of the sac was now cut away flush with the peritoneal lining of the abdominal cavity. Sutures of No. 2 plain catgut were then passed, one to the medial and one to the lateral side of the cecum, each engaging one of the angles formed at the junction of the corresponding peritoneal wing with the margin of the ring; the ends were left long.

The cecum was pushed back into the abdominal cavity and the ends of the two sutures just placed were tied tightly together, and one end left long. The ring was thus reconstructed and resembled that left after excision of the sac in the usual type of hernia. It was then closed by suture with the long thread first described. By these maneuvers the cecum was recovered with peritoneum to a point a little beyond the base of appendix; a short meso-cecum was reconstructed, and the parts returned to the abdominal cavity in approximately their normal condition and relationship. The rest of the operation was completed according to Colles and modified Bassini.

The operation was necessarily a long one, but the patient stood it well and was returned to bed in excellent condition. He developed delirium tremens on the second day following its performance, with marked restlessness. His condition was critical until the fourteenth day when his mind began to clear and his temperature was normal. Despite these handicaps we were fortunate enough to get primary union, and I can present the patient to you in healthy condition with a good firm closure of the abdominal wall.

This patient seen fifteen months after operation showed no tendency to recurrence.

118 Lafayette Avenue.

#### THE SURGICAL IMPORTANCE OF THE SIX LOWER NERVI INTERCOSTALES, WITH SPECIAL REFERENCE TO POSTOPERATIVE HERNIA.

By H. J. H. HOEVE, M.D., Des Moines, Iowa.

Every surgeon is familiar with the fact that even the slightest involvement of the nerv. radialis by callus in a case of fracture of the humerus is followed by symptoms affecting the extensor muscles of the forearm, varying in degree up to complete paralysis and atrophy, and it is generally known that similar results are obtained to a greater or less degree from the involvement of somatic nerves in any part of the body.

Taking into consideration these facts it is surprising to me that the branches of the intercostal nerves supplying the anterior belly wall are entirely ignored by many so-called surgeons. I personally have seen abdominal sections performed where absolutely no attention was paid to nerves or muscles, and I have been wondering why in such instances operation is not always followed by postoperative hernia.

I am fully aware of the fact that scar-tissue

formed in fascia is never as strong as similar tissue formed in muscle (Hyrtl) and also that localized infections in the tela subcutanea, or even between the layers of the anterior belly wall, may reduce the vitality of the tissues to such an extent that sequelæ in the form of hernia cannot be avoided. On the other hand, the pressure of drainage tubes, stitches or even gauze upon the abdominal intercostals may be amply sufficient to cause atrophic changes in the latter, which necessarily are followed by impaired innervation of the corresponding muscular segments and their subsequent atrophy.

According to my ideas, mechanical interference with the nerve supply of the individual muscular segments of the anterior belly wall plays an important role in the production of postoperative hernia, a fact which seems to be recognized by a few authors, among them Moynihan, who states: "It is a cardinal rule that there shall be no division of muscular fibers unless it is absolutely necessary for a sufficient exposure of the operative field; muscular fibers are always to be separated, never to be cut. Nerves likewise are things to be treated with respect." He quotes as an example a case where an abdominal nephrotomy had been performed through the right linea semilunaris, several nerves having been divided, and as an inevitable consequence, the rectus muscle supplied by them had wasted to the point of almost complete disappearance. An enormous hernia had developed, which no operation could possibly cure. Also I may quote Assmy, who states that in those cases where the rectus abdominis has been widely split vertically an atrophy of that part of the muscle, medial to the split—the part of the muscle which is dissociated from its nerve-supply—invariably takes place.

Hartman and Kocher certainly recognized the importance of the nerve-supply as they did not split the musc. rectus abdominis in their operation for gastroenterostomy or gastrostomy, but divided the anterior layer of the sheath of the rectus, pulled the muscle outwards, and then made an incision through the posterior layer of the sheath and subsequently replaced the muscle in its normal position.

Bryan also states correctly in his operative surgery, that the severance of abdominal intercostals is followed by a greater or less loss of power of the muscles to which they are distributed, and that patients should be guarded against the localized loss of power and hernial sequelæ incident to the division of those nerves.

It certainly is beyond my understanding how the Battle-Kammerer incision can still find adherents, as nobody but a man absolutely ignorant of the anatomy of the anterior belly wall would make an incision at the outer border of the musc. rectus abdominis and retract the muscle inward, thereby completely severing the corresponding anterior branches of the lower intercostal nerves, which enter the sheath of the musculi recti at the linea semilunaris (Spigelli) in order to reach the posterior part of the outer portion of the musc. rectus, which they pierce so as to form subsequently the anterior cutaneous branches of the belly.

I am ready to take the following standpoint: "Postoperative herniæ are due to mechanical interference with the nerve supply of the abdominal muscles. In clean cases this interference is the direct result of the cutting or bruising of any of the six lower intercostal nerves or occasionally due to the stretching of the anterior belly wall from pressure of gas in the intestine and stomach."

*The lateral cutaneous branches of the abdominal intercostal nerves (rami cutanei laterales abdominalis).—Location:—*

1. They become superficial about midway between the mamillary and the mid-axillary lines.
2. Between the digitations of the musc. serratus anterior, those of the musc. latissimus dorsi, and those of the musc. obliquus externus abdominis.
3. At the tip of the rib origins of the musc. obliquus externus abdominis, in the angle formed between the digitations of the musc. serratus anterior.
4. They divide into two branches, an anterior (ramus anterior) and a posterior (ramus posterior) right after becoming superficial.
5. The anterior ramifications lie just external to the musc. obliquus externus abdominis and pass downward, forward and inward across their corresponding ribs to almost in front of the sheath of the musc. rectus.

6. The posterior ramifications pass nearly horizontally backward around the lateral margin of the musc. latissimus dorsi.

7. The anterior branch of the 12th runs downward over the iliac crest.

Topography.—Places of emergence:—These correspond to a line drawn from the middle of the lower border of the musc. pectoralis major to the junction of the anterior and middle thirds of the iliac crest.

Direction of the anterior branches.—These correspond to lines drawn obliquely downward and forward from their place of emergence toward the linea alba.

Convey—sensory impulses.

Source:—From the nervi intercostales, 5th to 12th.

Course:—See distribution.

Distribution.—Anterior branches:—6th and 7th—to the skin over the middle of the epigastric region. 8th—to the skin at the level of the middle inscription tendinæ musculi recti. 9th—to the skin just above the level of the umbilicus. 10th—to the skin on a level with the umbilicus. 11th—to the skin just inferior to the level of the umbilicus. 12th—to the skin just above the iliac crest and to the skin over the musc. tensor fasciæ latæ and the musc. gluteus medius. A muscular branch is given off from the ramus cutaneus lateralis nervi thoracales 12 to the lower digitation of the musc. obliquus externus abdominis.

The lateral cutaneous branch of the ilio-hypogastric nerve does not enter into consideration.

*The anterior cutaneous branches of the abdomen (rami cutanei anteriores abdominalis).—Location:—*

1. They correspond to the terminal filaments of the lower six or seven abdominal intercostal nerves.

2. They become superficial within Scarpa's fascia about midway between the linea alba and the sulcus semilunaris: The 7th, near the processus xiphoideus sterni. The 8th, about two and one-half inches below the seventh. The 9th, at the middle inscription tendinæ musculi recti. The 10th, at the level of the umbilicus. The 11th, about two inches inferior to the level of the umbilicus. The 12th, about midway between the umbilicus and the symphysis pubis.

Convey—sensory impulses.

Source:—Corresponds to the terminal filaments of the lower six or seven abdominal intercostal nerves.

Course:—They run downward, outward and upward for about two or three inches from their point of emergence in the fascia of Scarpa.

Distribution.—Cutaneous branches:—To the skin and tela subcutanea over the sheath of the musculi recti according to their location.

*The anterior cutaneous branch of the ilio-hypogastric nerve (ramus cutaneus anterior nervi ilio-hypogastrici).—Location:—*

1. Corresponds to the terminal of the hypogastric branch of the nerv. ilio-hypogastricus.

2. In the tela subcutanea over the lower part of the sheath of the musculi recti.

3. Just above a point midway between the external inguinal ring and the ligamentum fundiforme penis.

Conveys—sensory impulses.

Source:—From the nerv. ilio-hypogastricus.

Course:—It breaks up into a few filaments at its place of emergence.

Distribution:—Cutaneous branches, to the skin over the pubic region.

#### DIRECTION OF SKIN INCISIONS.

Judging from the foregoing, it is plain that all incisions in the skin in Camper's and in Scarpa's fascia, clear down to the aponeurosis of the musc. obliquus externus abdominis, must extend *inward and upward over the upper part and downward and inward over the lower part* of the belly. This is necessitated not only in order to prevent the severance of the cutaneous branches of the abdominal intercostals, but also on account of the direction of the cleavage lines of the skin, as, according to Langer, the connective tissue bundles of the skin of the abdomen are directed inward and slightly upward, parallel to the direction of the ribs, over the upper part of the belly, whereas over the lower part they are directed downward and inward. Of course it is plain that incisions made parallel to the cleavage lines of the skin in any part of the body form thin, strong scars, whereas incisions placed at an angle to the direction of the connective tissue bundles mostly give rise to scars which spread with age. The linea alba possibly forms an exception on account of representing a median raphe, as in this locality a vertical incision can be made in many cases without bad results following.

*The anterior branches of the six lower intercostal nerves (rami anteriores nervi intercostales of the nervi thoracales 5th to 12th).—Location:—*

The 7th, 8th and 9th lie behind the anterior ends of the costal cartilages and the 10th, 11th and 12th under the anterior ends of the corresponding ribs, between the musc. obliquus internus and transversus abdominis. They are situated in the deep intermuscular areolar tissue or neuro-vascular layer of the anterior belly wall at fairly equal distances apart.

Convey:—mixed impulses.

Topography:—The topography of the 8th corresponds to a line drawn from a point just below the outer end of the eighth costal cartilage horizontally inward to a point one-half inch medial to the chondral border and then upward and inward parallel to the latter, but a half-inch medial to it. Of the

9th—corresponds to a line drawn from a point just below the costo-chondral articulation of the 9th rib horizontally inward. Of the 10th—corresponds to a line drawn from a point one-half inch above the tip of the 11th rib to the anterior superior spine of the ilium of the opposite side. Of the 11th—corresponds to a line drawn from a point a half inch below the tip of the 11th rib to the middle of the ligamentum inguinale (Poupart's) of the opposite side. Of the 12th—corresponds to a line drawn from a point a half inch below the tip of the 12th rib to the tuberculum pubicum of the opposite side.

Course:—The 7th and 8th pass upward and inward, the 9th and 10th nearly transversely, and the 11th and 12th downward and inward. The 7th, 8th, and 9th pass behind the anterior ends of the corresponding costal cartilages, and the 10th, 11th and 12th under the anterior ends of the corresponding ribs between the *musc. obliquus internus* and the *musc. transversus abdominis*, and course through the neuro-vascular layer of the anterior belly wall toward the *linea semilunaris* (Spigelli), where they enter the sheath of the rectus muscles which they traverse until they reach the posterior surface of the outer part of the *musc. rectus*. The 7th reaches the sheath of the rectus muscle near the xiphoid process; the 8th, about two inches and a half below the 7th; the 9th, at the middle inscription *tendinæ musculi recti*; the 10th, at the level of the umbilicus; the 11th, about two inches inferior to the level of the umbilicus; the 12th, about midway between the umbilicus and the symphysis pubis.

It is not my intention to enlarge the scope of this paper unnecessarily by giving a detailed account of the anatomy of certain structures, but I would like to state that everything in connection with the anatomy of the anterior belly wall is of importance to the abdominal surgeon. Between the *musc. obliquus externus abdominis* and the *musc. obliquus internus abdominis* is found a thin layer of areolar tissue which contains no nerves except the *nerv. iliohypogastricus* in its lower part, and which for the sake of convenience I have termed the superficial intermuscular areolar tissue layer of the anterior belly wall. Between the *musc. obliquus internus abdominis* and the *musc. transversus abdominis* another layer of similar tissue is encountered which I have termed the deep intermuscular areolar tissue layer or the neuro-vascular layer of the anterior belly wall, as this layer contains the lower intercostal nerves and some vessels during the greater part of their course.

It can readily be seen from the foregoing that during all operations on the abdomen the muscles

should be split according to the direction of their fibers, and not cut, as this affords the nerves their only chance of taking care of themselves.

Vertical incisions cannot be made in the *linea semilunaris* (Spigelli) without severing the intercostal nerves which enter the sheath of the recti in this region, and for the same reason the outer border of the rectus abdominis cannot be displaced medialward, but its medial border can be retracted outward without endangering its nerve supply.

That operations for the cure of postoperative hernia have come into disrepute is not to be wondered at, since it is absolutely of no use to sew together, or bunch up, atrophic muscle tissue, as of necessity it must give way to intra-abdominal pressure. As an example I may refer to the following case which came lately under my care:

Mr. R. W., aged twenty-four, had had an abscess in the region of the appendix vermiformis five years ago (May, 1907). He was in bed at that time for twenty-eight days after operation. Drainage was used. The lower part of wound did not heal readily, and he was operated on for postoperative hernia in September, 1907, and again for the same condition in December, 1909, and September, 1910.

#### TREATMENT OF POSTOPERATIVE HERNIA.

When it becomes apparent that a postoperative hernia is forming a supportive pad of adhesive plaster should at once be applied in such a manner as to prevent all undue strain on the paretic part of the individual muscles. During the wearing of this protective and supportive covering the individual muscle should be exercised morning and evening (resistance exercise) for periods not to exceed five minutes at the beginning. If it becomes apparent after a month or so that the paretic muscle fibers are not regaining their nerve supply, then an anatomical skin incision should be made at the center of the old scar (the latter being mostly vertical in these cases), and by careful dissection the entire paretic or, by this time, atrophic muscle portion removed, so as to permit the approximation of strong, well innervated muscle fibers. Special care must be taken to prevent injury as far as innervation is concerned, to muscle fibers, fascia or aponeurosis found in contact with the atrophic muscle fibers.

In certain cases the corresponding part of the aponeurosis of the *musc. obliquus externus abdominis* can be shortened by dissecting it loose from the anterior lamella of the *musc. obliquus internus* at the outer angle of the sheath of the rectus muscle and by dividing it vertically as far medialward as

possible in order to permit a subsequent sliding over of the aponeurosis toward the median line, where it can readily be fastened by two rows of interrupted sutures. In work of this character it will be found that atrophic portions of the musc. rectus abdominis are very difficult to deal with. Anastomoses or bridging with catgut between the nervi intercostales either in the deep intermuscular areolar tissue layer or at the outer border of the rectus is only occasionally followed by good results. As a last resource, in order to cover defects in the anterior belly wall which cannot be covered over in any other way, I recommend the implantation of a filigree made of silver wire.

#### SUMMARY.

1. Skin incisions should always be parallel to the direction of the cleavage lines of the skin.
2. Incisions in aponeurosis or muscle should be condemned, their fibers should be slightly nicked and then separated according to their direction.
3. Vertical incisions can only be made in the linea alba.
4. The musc. rectus abdominis should never be loosened at its outer border as there it receives its nerve supply, but it can be retracted outward.
5. If these facts are taken into consideration, large skin incisions and large openings in the belly can be made in operations for tubercular kidneys where the ureter must be followed downward, without the slightest danger of postoperative hernia following.
6. Division of the abdominal intercostal nerves results in paresis of that portion of the abdominal musculature which is supplied by these nerves, and this paresis causes a weakness and bulging of these parts of the abdomen, which undoubtedly increases the tendency to hernia.
7. Careful strapping and exercising the defective muscle will increase the innervation of its defective part.
8. After muscle fibers are shown to be irreparable on account of distinct atrophy, they should be removed and the healthy fibers should be approximated. The aponeurosis of the musc. obliquus externus abdominis may be shortened and made to overlap large-sized defects in the anterior layer of the sheath of the rectus.
9. As a last resource a filigree made of silver wire may be implanted.
10. Anastomoses and bridges of catgut between the intercostal nerves are not a success.

## A CASE OF DYSTOCIA CAUSED BY CONTRACTION RING (BANDL'S).

By J. FORMICHELLA, M.D., Bridgeport, Conn.

In no other branch of medicine are we called upon to face all at once such serious complications and obstacles, which we must be prepared to thoroughly understand and overcome for the sake of two lives whose fate is at our mercy, as in obstetrics. In most instances the contraction or retraction ring is the result of dystocia, but there are cases in which the ring causes the dystocia and many times this condition is overlooked even by otherwise careful practitioners. Indeed, in the obstetrical books this cause of dystocia has not been assigned due importance. Probably this is due to the small number of cases reported, because it is human nature to record our successes and not mistakes and failures. It often happens in cases of dystocia due to the contraction ring that the diagnosis is made only when exhaustion has set in, as Jardine points out, and there is little chance of saving either mother or child. My idea is that the greater number of cases reported, even when terminating disastrously, the more our attention is called to how to correctly diagnose and properly deal with this dreadful condition.

Bandl, in 1875, described a ring of fibers at the inner wall of the uterine muscle, located 12 to 15 cm. above the internal os at full term, at a point in the uterus opposite a large coronary vein, and where the serous coat of the organ adheres intimately to the subjacent muscle. This ring is the dividing point, during labor, between the upper uterine segment, which by its contractions propels the fetus through the parturient canal, and the lower segment, which is simply passive and dilates to form a passage for the fetus.

Many unsolved problems are connected with the contraction ring. Does it really exist? Does it exist only during the act of labor or even during the late months of pregnancy? Do its fibers contract independently of the rest of the uterus? The frozen sections of women dying in normal labor are there to show its normal existence. During confinement we are ordinarily unable to palpate it because the presenting part prevents us from doing so, while in special cases of dystocia followed or not by rupture of the uterus it is somewhat an easy matter to detect its presence, be it a consequence or a cause of dystocia.

The idea that it is present only during labor is more generally accepted, but from the case I am

reporting we cannot exclude that it existed during the late months of pregnancy. We cannot entertain any doubt that the contraction ring is necessarily a part of the general action of the uterine wall.

About the end of April I was called one evening in hurry to a lady who complained of strong abdominal and sacral pains and thought she was about to be confined. She was about thirty-eight years old, physically well developed, had previously had seven confinements, six with dystocia. While the seventh, four years ago, the only one in which I attended her, was normal. Last year she had been operated upon by Dr. Verdi, of New Haven, who performed trachelorrhaphy and perineorrhaphy, the patient becoming pregnant two months later. Examination of the abdomen revealed the long axis directed transversely and vaginal exploration showed the os to be undilated, admitting only the index finger, with which I could not feel any presenting part. I succeeded by external manipulations in converting the transverse into a cephalic presentation and applied a bandage, recommending absolute rest till the completion of pregnancy. At the end of May, corresponding to full term, one morning at 4 a. m., I was called again. The patient stated that during the last two months she had been suffering more or less severe pains. This time I found again a transverse dorso-anterior presentation, the head lying on the right side and the child's heart beating normally. The os dilated to the size of a silver dollar, but it was impossible for me to feel any presenting part. By external manœuvres I brought the head very easily to the upper brim, but could not engage the vertex. Under these circumstances I thought it better to deal with a face than with a shoulder presentation. At about 1 p. m. the dilatation was complete, the bag of waters broke, and the amniotic fluid rushed out together with a mass of prolapsed cord, which in a few seconds stopped beating, while I was vainly attempting to replace it. At this time the existence of a well-developed contraction ring, which had caused all the trouble, was discovered. Indeed, while the os was fully dilated and soft, at about 3 inches up from its lower edge, I could distinctly feel a hard contracted muscular ring, impossible to dilate, having a diameter of not more than 3 inches, and behind it the face in the second mento-posterior position, presenting together with the left hand. The center of the contraction ring was eccentric to the center of the upper brim so that the upper part

of the left frontal eminence was pressing against the right ileo-pectineal eminence. I could not convert the face into a vertex presentation.

More than once in my experience I have had to face the contraction ring as a complication and effect of obstructed labor, and always have found it difficult to deal with; in this case, however, the ring was the cause. I believe I am justified in thinking that in this instance it must have existed during the late months of pregnancy and prevented the cephalic extremity from engaging. That it was present at that time we can assume from the pains the patient experienced, having suffered interruptedly during the last two months, and there was no narrowness of the bony passages, no hydrocephalus, no hydramnios. Probably the cord which had a tendency to lie in the lower part of the uterus, provoked a sufficient stimulus for the production of the contraction ring. This prevented the sinking down of the head, which even when pushed into normal position, tended to return to the right side, not finding room enough to adapt itself to the new place.

Could the trachelorrhaphy have had anything to do in our case? I should think not. It is true that ventrofixation and suspension have caused serious dystocia, but we have no report of this condition being produced by trachelorrhaphy. In our patient the os was fully dilated and soft for a distance of over three inches, and it is the os to which the sutures are applied in this operation. At least we ought to have had a rigid os, while here there was nothing of this kind.

For the mother, if not for the child which was already dead, the condition was an exceedingly dangerous one. *Quid agendum?* By waiting I could have expected only an indefinitely prolonged labor, followed or not by rupture of the uterus and ending in exhaustion and death of the mother. We cannot hope that a contraction ring will disappear of itself, especially if we consider that generally it does not respond even to the administration by mouth or subcutaneously of antispasmodics, or even to general anesthesia. There is a sort of vicious circle so that the more the uterus contracts to expel the fetus, the more the ring obstructs the labor and vice versa, until the contraction becomes permanently tetanic. Even incision of the ring, which has been advised, may only hasten the rupture of the uterus, and may be indicated only during a Cesarean section. Dilatation with hydrostatic bags would not have worked well, as it was impossible to insert them and keep them so high up. There was no use think-

ing of Cesarean section, the child being dead. Podalic version had to be rejected for the same reason, besides exposing the patient to useless danger of uterine rupture.

The only correct way to deal with my case seemed to be to give a general anesthetic, dilate the ring manually, convert the face into a vertex presentation and deliver with forceps. But having doubts as to whether this could be done, and the fetus being dead, it seemed preferable to start with a craniotomy and keep on delivering the child, using the cranioclast or the cephalotribe.

Owing to the poor surroundings I persuaded the family to send the patient to the hospital, where I preferred to operate. Here my connection with the case ceased, the family calling another physician, who thought the case an easy one and under ether anesthesia attempted to change the face to a vertex presentation. Believing he had done so, he stopped the anesthesia and urged the woman to expel the fetus by means of her own bearing down pains. And as she was not quick enough, he injected morphin and went home, hoping for success. Next day at about 10 a. m. the work was resumed under general anesthesia and several attempts were made with forceps, these constantly slipping. Finally podalic version was resorted to, which was attended with the utmost difficulty, and at the moment the placenta was delivered the patient died of exhaustion.

The child, a female, was of normal size and appearance, not over 9 pounds in weight, with slight caput succedaneum, corresponding to the left frontal eminence, the head no larger than that of a full term baby.

### SCARLET RED.\*

By JOSEPH H. FOBES, M.D., New York City.

Scarlet red is an aniline dye used prior to 1906 as an ingredient for paints, a laboratory stain, and for various other purposes in the arts. Since then it has proved greatly superior to all other agents in surgery for promoting the growth of epithelium on granulating surfaces.

In 1906, Fischer (Bonn)<sup>1</sup> produced in a rabbit's ear a new growth of normal epithelium by the injection of scarlet oil. Cone<sup>2</sup> explained this action by demonstrating that scarlet red affects the cell at its most active physiological change point—the fat noted at the point of contact of cell body and

nucleus. Since then many others have experimented and some have advocated its use on the human being. Among these, to Schmieden (Berlin)<sup>3</sup> and John Staige Davis (Johns Hopkins)<sup>4</sup> belongs the greater credit. The latter's article in the *Johns Hopkins Hospital Bulletin*, June, 1909, is responsible for the author's interest in this substance which he began to use shortly afterwards at the Flower, Volunteer, Metropolitan Hospitals and New York Medical College and Hospital for Women.

According to Davis in a later article (July, 1911),<sup>5</sup> the varieties of scarlet red are as follows:

1. Diazo-azo-benzole disulphonic acid and beta-naphthol (also known as Biebrich's scarlet), ponceau, new red L, and imperial scarlet.
2. Benzene-azo-benzene-azo-beta-naphthol, also known as sudan III and cerasine red.
3. Toluene-azo-toluene-azo-beta-naphthol, also known as Fischer-Schmieden red-oil, scarlet red B oil soluble, ponceau oil.
4. Azo-beta-naphthol-monosulphonic acid, a sodium salt of xylene, known as scarlet G. R., scarlet red, brilliant orange red and orange.

Hayward<sup>6</sup> in 1909, upon investigating the scarlet red oil of Fischer and Schmieden, number three in the series, found that the beta-naphthol alone was most irritating to tissues and the amido-azo-toluol produced the best growth of epithelial cells. The latter substance is composed of sodium nitrate, orthotoluidin and hydrochloric acid and is a brown granular powder. It is the latest word in scarlet red therapy.

Davis first advocated ointments of Biebrich's red, varying from two to ten per cent., made up in boric acid U. S. P. ointment as a base. This was applied on alternate days on gauze. Some cases of poisoning ensued, as shown by pain locally and scarlet urine. These disappeared upon discontinuance of the drug.

Soon after the appearance of Davis's article in 1909 the author commenced using scarlet red, made up in a ten per cent. strength with boric unguent. acid. boric. U. S. P. as a base, upon numerous granulating wounds, varicose ulcers, skin graft cases, burns, etc., at the clinic at the Flower Hospital. The results were uniformly excellent and the epithelial proliferation was remarkable. Since then this dressing has been employed regularly wherever epitheliation was required. Not one case of poisoning has been noted nor any discomfort whatever.

Three months ago, through the good offices of Dr. Lincoln Cocheu of the Baylies Laboratories,

\*Read before the annual meeting of the Homeopathic Society of the State of New York, February, 14, 1912.



a sample of amido-azo-toluol was obtained from the Custom House, and an ointment consisting of amido-azo-toluol, eight parts, and oleum telesphoros, ninety-two parts was used. This produces epithelial growth in one-third of the time taken by the older ointments. This is attributed to two factors—the more marked action of the dye and the better absorption of the vehicle. Dr. Harold Foster reports excellent results with this substance, which I furnished him, in nasal cases, and it has also been employed with good results in powder form.

#### CONCLUSIONS.

1. Scarlet red will grow epithelia.
2. Amido-azo-toluol is at present the best form in which to use this drug.
3. Ol. telesphoros is an ideal vehicle.
4. The action of the dyes on tissue for therapeutic purposes opens up a large field for experimental investigation.

#### BIBLIOGRAPHY.

- <sup>1</sup> *Münch. Med. Woch.*, 1908, No. 4.
- <sup>2</sup> *Zeitschrift für Pathologie*, 1907.
- <sup>3</sup> *Centralblatt für Chirurgie*, 1908, No. 6.
- <sup>4</sup> *Johns Hopkins Hospital Bulletin*, June, 1909.
- <sup>5</sup> *Ibid.*, July, 1911.
- <sup>6</sup> *Münch. Med. Woch.*, 1909.
- <sup>7</sup> West 68th Street.

### ANENT UTERINE CURETTEMENT.

By FRANK K. GREEN, Ph.G., M.D., and Q. W. HUNTER, M.D., Louisville, Ky.

Although the subject of uterine curettement has not been neglected by medical writers in the interim, few contributions of especial or even relative scientific excellence have been made to the literature thereof during the last few years; and, since there is yet no consensus of opinion with respect to its indications, contraindications, etc., the apparently interminable controversy persistently continues. While there are honest and conscientious advocates both pro and con, as may be expected concerning other medico-chirurgical hypotheses permitting reasonable divergence of opinion, yet in the absence of intimate understanding and requisite knowledge of the minutiae on both sides to the controversy, no one can be considered competent to pass intelligent judgment; moreover, regardless of personal experience it would be manifestly improper, unjust and unwise to attempt to impartially criticise or pass final judgment upon the merits or demerits of the operative work of another, even along similar lines,

not only because of the inevitable angulation of viewpoint, but the essential variation in operative technic and individual erudition.

Not many years ago what was considered to be the trivial operation of uterine curettement was recommended and practiced in the attempted alleviation of multitudinous local disorders of the generative tract of which it is characteristic of the *genus homo femininis* to persistently complain. The procedure was believed so promptly effective and so devoid of immediate and remote dangers or sequelæ that those without previous operative training, having but recently acquired the Aesculapian raiment, did not hesitate to thus invade the uterine cavity, at least partially denuding and destroying the endometrium and thereby depriving it of the only inherent anatomical possibility of protection and conservation from serious infection, viz., an intact mucosa, in the fancied effort to cure real or imaginary local disease of the genitals and other ills.<sup>1</sup> Not infrequently was an apparently trivial endometritis thus promptly converted into a myometritis, which not only entailed infinitely greater immediate dangers to the patient, but the operation induced subsequent pelvic lesions which oftentimes terminated life in the absence of prompt rational surgical intervention, i. e., celiotomy with adequate treatment of the infected structures.

The probability of aggravating, promoting and disseminating pre-existing cervical or uterine infection by curettement was evidently underestimated, ignored or entirely overlooked. Repeated curettement was oftentimes practiced provided expected benefit failed to accrue from the initial performance, and when celiotomy later became an imperative necessity to conserve the life of the patient, it was not suspected that the vigorous, unwise and unwarranted employment of the curette could at least be held partially responsible for the resulting salpingitis, peritonitis, etc.

The operation of uterine curettement at one time reached such an astonishing degree of popularity, because of the fancied benefit occasionally derived therefrom, that the equipment of no practitioner of medicine was considered complete without an assortment of instruments for this purpose, otherwise his clientele gravitated toward those who possessed

<sup>1</sup> As an illustration of the absurdity of the claims concerning the beneficial effects of curettement, a recent author (Sylvester) reports an example of "psoriasis cured by celiotomy and curettage" (?). The patient also suffered from a large retroverted uterus, with a polyp projecting from the external os, a small fibroid tumor on the posterior wall of the fundus, and an offensive viscid discharge. The uterus was curetted and the polyp removed; celiotomy was performed for extirpation of the fibroid, and the uterus attached to the anterior abdominal wall. Four days thereafter the eruption (psoriasis) seemed much improved, in two weeks it was not visible on the face, two months after the operation there were no signs and the psoriasis did not recur!

such elaborate outfits and did not hesitate about using them upon every available occasion.<sup>2</sup> Thus without rhyme or reason females, adolescent, middle-aged and old, rich and poor, of all nationalities and classes, from the banker's wife or daughter to the *puella publica*, had their uteri dilated and curetted, irrigated and packed, in the attempted cure of various disorders real or otherwise. It was also the custom of certain operators to invariably practice thorough uterine curettement as a preliminary measure to the presumably more serious surgical procedures of oöphorectomy, salpingectomy and hysterectomy, the exact purpose or reason for which has never been reasonably nor adequately elucidated.

Since no one apparently thought serious immediate or remote danger could possibly attach to the presumably trivial procedure of uterine curettement, it was oftentimes undertaken without previous preparation of the patient, nor was the administration of a general anesthetic deemed requisite for its performance! In other instances, however, the patient was as carefully (over) prepared as was the custom before primary hysterectomy for carcinoma or celiotomy for other palpable pathological lesions requiring surgical intervention, the "operator together with his assistant and all the surgical paraphernalia being duly scrubbed, baked and otherwise sterilized," then at the first "sweep" of the curette the friable uterine wall was punctured! Upon being withdrawn the instrument was perhaps accompanied by a coil or two of small intestine, necessitating immediate celiotomy to repair the damage inflicted in the primary operation!

Thus it may be observed that besides promoting extension of pre-existing infection there are other and more serious dangers incident to the use of this instrument within the cavity of the uterus. An additional danger, says Baldwin, and one that is very real, is that of perforation of the uterine wall by the curette itself, which takes place as it passes upward and not from contact of the edge during its withdrawal. The tissues of the uterus are likely at any time to be very friable, but this is especially true following pregnancy, whether at full term or premature. There is probably no gynecologist of

large experience in the world who has not observed such an accident (perhaps several times) in his work. This matter was under discussion at a meeting of the American Gynecological Association, and about every man who took part therein confessed to having encountered such cases. In most instances the trouble is limited to a simple perforation, but in the hands of the less experienced it has happened a number of times that the withdrawal of the instrument has brought with it a loop of intestine. If there is little that is pathological in the uterine cavity, and the operation has been done under strict asepsis, simple perforation of the fundus in the majority of instances would do no harm; but if one is curetting for septic conditions, the passage of the infected curette into the peritoneal cavity would almost certainly induce peritonitis with probably fatal results. In all cases in which there is danger of sepsis, and where a loop of bowel has been brought down, the life of the patient may be regarded as depending upon prompt celiotomy, with such treatment of the uterine fundus and injured intestine as may be necessary. A more common risk of curettement is infection, which is most pronounced where septic debris remains following pregnancy. Nature has usually provided ample barriers to prevent infection reaching the deeper structures, but when the operator with his curette recklessly used—or even employed with great care—scrapes through these barriers so that the infected material comes in direct contact with the tissues underneath, general sepsis is at once invited and sometimes follows with startling rapidity (Baldwin).<sup>3</sup>

Heineck collected one hundred and fifty-four instances where the uterine wall was wounded during intrauterine instrumentation, in forty-four of which the curette alone was responsible; and of fifty perforations due to miscellaneous agents, it is reasonable to assume at least one-half were also attributable to this instrument, since barring the sound it is most frequently utilized for intrauterine manipulation. In this series there were forty-two deaths, one hundred and eight recoveries, result not stated in four. Expectant treatment was pursued in sixty-six cases, followed by death in twenty-one. Celiotomy with repair of visceral and uterine injury was performed in seventy-two cases, with

<sup>2</sup> There are few who cannot recall the craze that possessed every one from the tyro to the teacher, to employ the curette for every ill to which female flesh is heir, and frequently with disastrous effect. A writer in the *Medical Summary* for September, 1900, declared that even in the smaller towns and rural districts there seemed to be a craze for curetting the uterus. In the larger cities where frequent interchange of opinion is encouraged through medical society meetings, etc., the indiscriminate use of the curette was no longer fashionable. The writer further stated that the advanced knowledge of the uterine conditions requiring use of the curette had in no sense restricted its usefulness, but had only placed a judicious limit thereon; that there were, of course, occasions for its utilization when nothing could supplant it; but the occasions were happily not so frequent as was thought a generation ago!

<sup>3</sup> On numerous occasions the uterine wall has been perforated by the curette, not only in inexperienced hands, but also by the most skilled operators. Among those confessing to such a contretemps (one or more times) are: Cullen, Lenoir, Morlet, Harris, Kutzner, Van Ripper, Kelly, Hall, Patric, Brothers, Ullman, Lobdell, Tait, Auvard, Jarman, Bishop, Boldt, Holmes, Cleveland, Reamy, Gordon, Henrotin, Werelius, Schenck, Congdon, Boise, Currier, Heineck, Hickman, Dudley (A. P.), Hessert, Brown-Fernald, Smith, Dudley (E. C.), et al.

fifty-two recoveries, seventeen deaths, result not stated in three. In fifteen cases in which vaginal hysterectomy was performed, there were ten recoveries, four deaths, result not stated in one. "As to uterine curettes, there does not seem to be any pattern which cannot, suitable conditions being present, determine a perforation of the uterus. The blunt and the sharp, the fenestrated and the non-fenestrated, the even-margined and the sinuous-margined, are each reported as having perforated the uterine wall." (Heineck).<sup>4</sup>

It will therefore be observed that it matters little what may be the variety of the instrument utilized in curettement, likewise regardless of the personal experience and operative erudition of the surgeon, the uterine wall may be perforated, and in the majority of instances the patient is thereafter in serious danger of losing her life unless conserved by prompt invocation of modern surgical principles, i. e., immediate celiotomy with adequate repair of whatever visceral and uterine damage may have been inflicted. If the uterine perforation be insignificant and no serious injury be inflicted upon the pelvic viscera, by prompt celiotomy the operator may not only save the life of the patient, but by proper closure of the perforation may avoid hysterectomy, thus preserving the child-bearing function. However, it not infrequently happens that the curette inflicts such serious damage upon the adjacent pelvic structures that the accident is followed by diffuse peritonitis and prompt dissolution. Examples have been recorded where it became necessary to resect several feet of small intestine following injury caused during uterine curettement. Thus in Hessert's case four feet of the intestine had to be sacrificed, and if the writers be not mistaken, in an example reported by Davis over fifteen feet of small intestine had to be resected under similar circumstances; but fortunately both patients were promptly subjected to celiotomy and finally recovered despite the extensive damage inflicted and the mutilating operations made necessary thereby.

In this connection it may be safely stated that but few of the instances in which the uterine wall is accidentally perforated, either by legitimate practitioners of medicine or by criminal abortionists, ever find their way into the literature. Many women have promptly succumbed to peritonitis following uterine curettement where the true cause

of death was unsuspected until necropsy was performed. In the larger proportion of such cases it is more than likely that life could have been preserved by prompt celiotomy with necessary repair of the uterine and visceral damage. In some, owing to the inherent power of contractility of the uterine muscularis, hemorrhage is prevented, the pelvic viscera may escape serious injury, not even local peritonitis ensues, and the patient suffers no lasting trouble. However, as already outlined, the converse is generally true. In any event, death following curettement is ordinarily attributed to the disease for the alleviation of which the operation was undertaken, rather than to uterine perforation and the resulting peritonitis, and provided neither celiotomy nor necropsy be permitted the real facts never become known.

In considering the advisability or inadvisability of uterine curettement, it must be remembered that the endometrium possesses some more or less distinctive characteristics, e. g., (a) it is largely composed of lymphoid structure rather than true mucosa, (b) there is practically no protecting submucosa intervening between it and the myometrium, and (c) the muscularis being thus unprotected by submucosa infection is readily transmitted thereto via the utricular glands. For these reasons extension of pre-existing infection to the surrounding structures after this procedure should not be difficult to understand or appreciate.

As herein suggested, uterine curettement has hitherto been recommended and practiced in attempted alleviation of a variety of local genital and other disorders, which collected and epitomized would read about as follows: (1) For diagnostic purposes, i. e., to acquire information concerning the interior of the uterus; (2) in uterine hemorrhage; (3) in profuse leucorrhea regardless of the probable cause; (4) intrauterine new-growths and degenerations; (5) in hemorrhagic, serous or purulent uterine discharge; (6) in uterine fungosities; (7) in non-developed uteri, e. g., of young girls with constitutional dyscrasia who lead sedentary lives and are overworked, when menstruation begins late in life and is associated with dysmenorrhea; (8) in procidentia accompanied with endometritis; (9) in septicemia, e. g., following labor or abortion; (10) in menorrhagia, metrorrhagia and metrorrhea; (11) in subinvolution; (12) in lacerations of the cervix uteri; (13) in uterine fibromata, myomata and adenomata, to arrest hemorrhage and relieve endometritis (especially valuable at the menopause); (14) in endometritis, and metritis, atrophic, purulent, septic and specific, where dysmenorrhea and leucor-

<sup>4</sup> In not a few instances has the uterine wall been perforated and extensive injury inflicted upon the pelvic viscera by steel sounds in the hands of women educated in their use, criminal abortionists, et al., but detailed consideration thereof would hardly come within the purview of this dissertation. Mann cites an example following self-inflicted criminal abortion where the woman's life was saved by prompt celiotomy.

rhea are prominent symptoms; (15) in displaced uteri and sterility associated with dysmenorrhea; (16) in chronic cervicitis; (17) in hypertrophied cervical glands and glandular degenerations of the os uteri; (18) in carcinoma uteri, e. g., to control hemorrhage in the earlier stages, to relieve endometritis, to limit progress of the disease until radical operation may be undertaken, and as a palliative in the later stages when hemorrhage is frequent and copious; (19) as a preliminary procedure to surgical operations of more importance and consequence.

On the other hand, Robinson claims that the only objects of uterine curettement should be: (a) To remove portions of intrauterine tissue for diagnostic purposes (suspected carcinoma, sarcoma, etc.); (b) to remove placental debris (abortion, miscarriage, labor); (c) to remove abnormal endometrium.

The expressed opinions of others to the contrary notwithstanding, the writers of this article wish to distinctly and emphatically disclaim the existence of the majority of the enumerated indications for invading the uterine cavity with a curette or any other instrument, and to enter a vigorous protest against indiscriminate uterine curettement in attempted alleviation of the numerous and diversified mentioned disorders of the female genital tract. One rational indication is frankly admitted, i. e., to obtain a specimen of intrauterine tissue for microscopical examination in suspected carcinoma or sarcoma, and another is tentatively conceded when permissible, i. e., following abortion, criminal or otherwise, during the first four months of uterogestation where it is impossible to remove the remaining debris with the finger.

The writers further desire to contend that it is quite impossible for the most skillful operator to positively determine whether or not he has by so-called "thorough curettement" eliminated all normal, abnormal or diseased endometrium; in fact, the assertion is made without fear of successful contradiction that no matter what may be his individual experience and operative dexterity, no surgeon ever completely removed the normal or abnormal endometrium by the curette. In this connection, Robinson declares that anyone can test the effects of this instrument upon an extirpated uterus by exposing the endometrium by a longitudinal incision through the uterine wall, when by vigorous application of the sharp curette ragged, irregular linear wounds alone appear, while four-fifths of the endometrium remains intact. In the realm of gynecologic surgery no more cruel

and dangerous instrument than the sharp curette has been invented. It inflicts untold damage on the genital tract and adjacent pelvic structures, as well as causing numerous deaths, without accomplishing relative benefit. In general, curettement of the uterus is as irrational, unnecessary, and harmful as it would be to curette the nasal mucosa; for uterine and nasal mucosæ resemble each other in possessing no submucosa, no barriers to check infectious invasion. The misuse, mal-application and abuse of the curette may be noted in: (a) Puerperal subjects (abortion, miscarriage, labor), distributing infection and emboli; (b) in non-developed and atrophic uteri, inflicting wounds for dissemination of infection; (c) in uterine myomata, etc. (hemorrhage and producing wounds for entrance of infection); (d) in sterility, inflicting wounds for diffusion of infection; (e) in endometritis (gonococcus, streptococcus, staphylococcus) causing abrasions which increase and disseminate existing infection; (f) in the exacerbation and distribution of sepsis; (g) in uterine perforation. No instrument has been so extensively misused and abused as the curette. It is employed in the mildest endometritis (uterine catarrh?) as well as in the most desperate pelvic disease, hemorrhage, sepsis, pain; in fact, there is practically no gynecologic condition to which it has not been (mis) applied, and its indiscriminate employment has probably been the cause of more misery than any other factor in gynecology, and not a few deaths. The damaging results of uterine curettement are: Myometritis, salpingitis, peritonitis, cellulitis, sterility, emboli, phlebitis, perforation—in short infection is started on its journey through the oviducts into the peritoneum and through the myometrial lymphatics. The curette produces numerous wounds, atria for infectious invasion. The endometrium is a luxurious medium for bacterial growth, not only resulting in endometritis, salpingitis and pelvic peritonitis, but also myometritis and lymphangitis. The uterus possesses no submucosa to check bacterial invasion, hence endometritis rapidly becomes myometritis (Robinson).

The puerperal and traumatic infections may extend with terrible rapidity to a fatal result. The infected endometrium pours its septic products through the lymph channels, so that myometritis, lymphangitis, cellulitis, peritonitis, salpingitis, and ovaritis are quickly induced. The diffusion of septic products may proceed with such intensity and rapidity that no limiting wall of inflam-

matory products can be found, and the entire system is poisoned. Suppurative foci may form in the myometrium in the less grave forms of acute infection. In the milder cases of this type the inflammatory process walls around the infected area. It is the peritonitis which saves life. Dilatation, curettement, and gauze drainage of the endometrium should not be applied in the treatment of these cases of acute infection. This procedure is most perilous. The mouths of vessels are closed; the inflammatory exudate which limits the infected area is fresh and soft; the infection has already passed to the parametria. To open vessels and break through barriers is to spread infection (McMurtry).

Notwithstanding the pertinent fact that the contraindications and dangers far eclipse the indications and beneficial effects under the most favorable circumstances, uterine curettement is still being erroneously recommended and practiced in attempted amelioration of various symptoms and alleviation of certain disorders of the female genital tract, not only by the unskilled and inexperienced but also by presumably enlightened and scientific operators.

While there appears abundant evidence to substantiate the claim that curettement is decidedly harmful instead of beneficial in the majority of instances in which it is recommended and practiced, many of its advocates still contend that their views are correct, i. e., they seem unwilling to be convinced that their judgment is based upon false premises.

Particularly is curettement contraindicated in the two disorders for the relief of which it is most frequently employed, viz., in sepsis following childbirth and in septic endometritis. In either case the endometrium is necessarily abraded by application of the curette, thus furnishing abundant fresh areas for extension of infection, conducing to subsequent metritis, myometritis, salpingitis, peritonitis, and to embolism (brain, kidney, lungs, etc.) which is more often than otherwise quickly followed by a fatal termination.

## REFERENCES.

- Sylvester: *Boston Medical and Surgical Journal*, May 24, 1906.  
Baldwin: *Cincinnati Lancet-Clinic*, April 4, 1908.  
Birchett: *Medical Times*, New York, August, 1903.  
Hessert: *Chicago Medical Recorder*, May, 1905.  
Mann: *American Journal of Obstetrics*, May, 1895.  
Hickman: *Medical News*, March 2, 1895.  
Fisher: *American Medicine*, October 22, 1904.  
Elsner: *Medical Record*, October 8, 1892.  
Bevan: *Surgery, Gynecology and Obstetrics*, October, 1906.  
Heineck: *Mobile Medical and Surgical Journal*, October, 1908.

- Bishop: *Cleveland Medical and Surgical Reporter*, February, 1909.  
Parsons: *The Hospital*, May 2, 1908.  
Campbell: *British Medical Journal*, No. 2127, 1902.  
Hardy: *New Orleans Medical and Surgical Journal*, July, 1911.  
Henry: *Western Medical Review*, June, 1906.  
Johnston: *Cincinnati Lancet-Clinic*, July 16, 1910.  
Robinson: *American Medical Compend*, November, 1908.  
McMurtry: *American Practitioner and News*, January 15, 1899.

## DEPRESSED FRACTURE OF MALAR BONE; REPORT OF A CASE.\*

By H. T. A. LEMON, M.D., Washington, D. C.

Because of its relative infrequency as an injury and the great liability of overlooking the actual condition in some cases of depressed fracture of the malar bone until swelling has subsided, I felt that a report of this case might have a place in the program of this association.

Anatomically considered, the malar is a compact bone of comparatively small dimensions, articulating with four larger bones, three of the cranium, frontal, sphenoid, and temporal, and one of the face, superior maxillary. The articular surfaces of the malar and the processes which unite it to the adjacent bones are of lesser density than the body of the malar; therefore, by reason of its prominent and exposed position, its shape, relative size and density, it is more liable to transmit than to sustain a fracture. It appears to me almost inconceivable that a fracture of the malar alone could be produced.

In this connection I wish to quote at some length from DaCosta's "Modern Surgery": "The malar bone is rarely broken alone. Hamilton says no uncomplicated case is on record. The malar is a strong bone resting on a fragile support, and hence it may become a wedge to break other bones and yet itself remain unfractured. A fracture of the orbital surface of this bone causes subconjunctival hemorrhage like that encountered in fracture at the base of the skull, and may produce irritation of the infra-orbital nerve. Protrusion of the eye may result either from hemorrhage or from crushing in of the malar bone. There is a hollow below and to the inner side of the orbit. The cause of the fracture is violent, direct force. Occasionally the line of fracture is detectable, but mobility and crepitus are rarely discoverable. Chewing is apt to cause pain, and often the motions of the lower jaw are limited, the coronoid process being pressed upon by a depressed malar bone, an associated fracture of the zygoma, a blood clot, or swollen tissue." Other

\*Read at meeting of Railway Surgeons of Pennsylvania Lines East of Pittsburgh, May 31, June 1, 1912.

authors have written to greater or less extent on this subject, but I have cited the foregoing because it embodies practically all the salient facts. To this could have been added the possibility of the fracture extending into the antrum of Highmore.

As an example of this injury I wish to report the following case: A car repairer called at my office the day following an injury sustained by being struck in the face by a lever in a jack, which had slipped, causing the lever to spring around with great force. There was not a great deal of swelling and the patient appeared to suffer no constitutional disturbance. At first I did not suspect an injury to the malar bone. No crepitus nor mobility could be detected, but my attention was called to an irregularity in the lower orbital ridge, at the junction of the malar and superior maxilla, and this was the only palpable deformity that could be determined at that time. Subsequently as the swelling subsided I could see some flattening of that side of the face, caused by a slight depression of the zygoma. He complained also of pain on that side when chewing. There was some injection of the conjunctiva. He complained also of diminished vision, and I sent him for examination to Dr. W. K. Butler, oculist, who reported 5-9 for far and near, also a sluggish and uneven pupillary reaction. Another examination by Dr. Butler a month later showed improvement in pupillary reaction and in vision to 5-6. This man was also seen by Dr. C. S. White regarding the advisability of attempting the correction of the slight deformity. It was agreed that as the deformity was barely noticeable and the disability only temporary, it would be better not to attempt to reduce the slight displacement that existed.

I have not considered treatment in this class of cases which, of course, varies with the special condition. The purpose of this paper is to direct attention to the malar displacement and the associated transmitted injuries caused by this displacement, also to the possibility of such injuries existing without marked constitutional disturbances. It would, therefore, be well to bear in mind in the examination of every case of severe blow upon the face the possible presence of malar displacement and the resultant injuries. When extensive swelling exists, it is almost impossible at times to make a satisfactory diagnosis. The method of examination usually advised, of standing behind the patient and attempting to palpate the malar bone, is not always satisfactory; but palpation of the lower orbital ridge is simple and can always be carried out, and a fracture at this, the usual point — the articulation of the

malar and superior maxilla—can easily be determined.

### A NEW PERIOSTEOTOME FOR CLEFT PALATE OPERATIONS.

By BENJAMIN B. CATES, M.D., Knoxville, Tenn.

That surgeons are not agreed as to the best methods of closing the defect in cleft palate operations is evidenced by the many procedures offered to the profession by different operators.

The majority of surgeons admit, however, that the chief cause of failure following staphylorrhaphy is cutting out of the sutures; the cause of the sutures cutting through being an undue amount of tension on the flaps, owing to imperfect mobilization of tissues designed to bridge over the defect in the palate.

In an ideal cleft palate operation the flaps following mobilization should easily fall together, somewhat after the manner of the lids to a trap door. The function of the sutures is simply to hold the new surface vis a vis, and thus prevent any overriding of the tissues.

Therefore, any agent or instrument that will simplify the technic of cleft palate operations will have to do with facilitating mobilization of the flaps and minimizing hemorrhage. For this purpose I have designed a periosteotome—right and left—that will meet every indication for mobilizing the flaps in staphylorrhaphy and reducing the difficulties of an otherwise irksome operation.

By adopting the plan suggested by Brophy in his excellent monograph, "Surgical Treatment of Palate Defects," that is, commencing at the cleft and working out towards the alveolus, the soft parts can be easily mobilized. Also by following the periosteotome with ribbons of gauze packed in between the flaps and hard palate, hemorrhage can be to a great extent controlled.

Of course it goes without saying that the edges of the cleft in the soft palate are to be freshened. It is needless to further pare the edges of the flap removed from the hard palate as they are already freshened by mobilization, besides such a step would sacrifice an unnecessary amount of tissue needed to close the fissure.

Having then relieved all tension on the flaps so that they are easily approximated, three or four stay sutures of silk are inserted, and between each stay suture one or two horsehair stitches are introduced to keep the edges of the flaps from turning in.

The periosteotomes are so constructed, the cutting edge being on a curve at an oblique angle to

the shank, and another curve on the shank, that the operator may assume any angle in a small space and thus complete the mobilization of the flaps with ease and dispatch.

### **FURTHER OBSERVATIONS ON PRURITUS ANI: ITS PROBABLE ETIOLOGIC FACTOR, RESULTS OF TREATMENT.**

**A second report based on the results of original research.**

By DWIGHT H. MURRAY, M.D., Syracuse, N. Y.

*(Concluded from August Number.)*

The following new cases, numbers 20 to 32, inclusive, have been examined since my report of last year, and I give herewith the bacteriologic findings with results of treatment in the patients that have been examined and treated.

Detailed reports of the injections are not given in these cases because they were all treated according to the technic heretofore given.

Case XX. July 28, 1911. Mr. C., aged thirty-four, in perfect health, except that he has pruritus ani.

Examination showed the skin denuded, macerated, fissured, and lacking in pigment.

Bacteriologic report: External, streptococci, pure culture. Internal, B. coli, few.

Following the fifth injection, notwithstanding the fact that he had no reaction, the itching began to grow less. He received in all thirty-two vaccine injections. At the present time he is free from itching.

Case XXI. September 5, 1911. Dr. C. M. S., aged thirty-three, first noticed pruritus ani four years ago.

Examination showed several fissures, a partially macerated appearance of the skin, but not of the severity of most cases.

Bacteriologic report: External, streptococci, pure culture.

September 21st I began treatment, which was continued until October 14th, when he received 13 minims; followed by severe reaction lasting nearly a week. He reported at this time that the character of the itching had changed, being less intense than formerly.

May 16, 1912, seven months after the last treatment, he reported that he had had no itching since the last treatment (Oct. 14). I took a culture with the following result:

Bacteriologic report: External, streptococci (2

or 3 colonies); otherwise culture medium was sterile.

Case XXII. September 15, 1911. Dr. L. H. S., aged forty-nine, has always been well except for pruritus ani which he has had for the past thirty-years.

Examination showed macerated, non-pigmented area of the skin of the posterior half of the anal region, with fissures and folds. The usual culture was taken.

Bacteriologic report: External, streptococci, many. Internal, B. coli, few.

September 20, 1911, I gave the first injection, as customary in the left arm. The treatment was continued until December 28, 1911, with the usual improvement. At this time we were unable to find any streptococci in the cultures, and the patient was so much better that it was deemed wise to allow him to go without treatment for a time.

February, 1912, he returned and a new culture was taken with the following result:

Bacteriologic report: External, B. coli, few; streptococci, very few.

He reported very little itching since the last treatment.

Case XXIII. September 6, 1911. Dr. W. W. S., aged fifty-one, always well with the exception of pruritus ani which began five years ago.

Examination showed the skin macerated, fissured and in folds. The usual cultures were taken.

Bacteriologic report: External, streptococci, pure culture. Internal, B. coli; staphylococci, few.

The patient lived a considerable distance from Syracuse and has had no vaccine treatment.

Case XXIV. October 2, 1911. S. D. H., aged fifty, noticed pruritus ani eighteen years ago. Two years ago he had an abscess in the left groin, and since then he has had a number of smaller abscesses about the anal region. The pruritus is so severe that he gets very little sleep, and is also diurnal.

Examination showed maceration, a large number of skin fissures, marked loss of pigment, and a brawny mass, which is red and tender, on the right anterior quadrant, one and one-half inches from the anus. This was an abscess which I incised thoroughly, curetted, and packed. A posterior complete fistula was also present. The patient had psoriasis on each elbow.

Four primary cultures were taken in this case: Number I, from the skin outside the anus; Number II, from the mucous membrane inside the anal canal; Number III, from the pus of the abscess; Number IV, from a small discharging place on one elbow where psoriasis was present.



Bacteriologic report: I. External, streptococci, pure culture. II. Internal, B. coli, staphylococci. III. Staphylococci only. IV. No growth.

October 9, 1911, the treatment in this case was begun with 4 minims of autogenous vaccine.

October 28th, he reported that the itching was growing gradually less and had changed in character. The fourth injection of 14 minims was administered.

At the present time he has no itching, notwithstanding the fact that the *fistula still exists with a continual discharge upon the anal skin*. The total number of injections given was four.

Case XXV. October 14, 1911. M. G. F., aged thirty-nine, has had pruritus ani nine years; itching only at night.

Examination showed that the skin for an inch around the anus was reddened, in folds, with loss of pigment, and a large number of skin fissures which extended well back between the nates. Cultures were taken as usual.

Bacteriologic report: External, streptococci, B. coli, staphylococci. Internal, B. coli, staphylococci.

This patient did not accept treatment.

Case XXVI. October 30, 1911. H. M. G., aged sixty-seven, has had pruritus ani for more than thirty years. It has grown gradually worse until at present he says that the condition is unbearable. Examination showed the skin almost entirely denuded for three and one-half inches in every direction from the anus.

Cultures were taken as follows: Numbers I and II, from the anus external and internal; Number III, 10 inches distant.

Bacteriologic report: I. External, streptococci, pure culture, B. coli. II. Internal, B. coli. III. No growth.

This patient is troubled with eczema; at times he has albuminuria. He had always been constipated until ten years ago, at which time I gave him a course of treatment; since then his bowel movements have been entirely regular. This indicates that at least in his case, constipation was not the cause of pruritus ani.

November 7, 1911, he began taking the vaccine treatment. He is not cured, but is much improved. The skin is healed and the patient is comfortable most of the time. The total number of vaccine injections given to date is twenty-seven. A further report will be made on this case next year.

Case XXVII. November 11, 1911. Mrs. B. H. B., aged fifty-seven, for the past fifteen years has had what she terms an eczema, and recently has had severe itching on one side of the anus which has been worse at night. There is maceration and

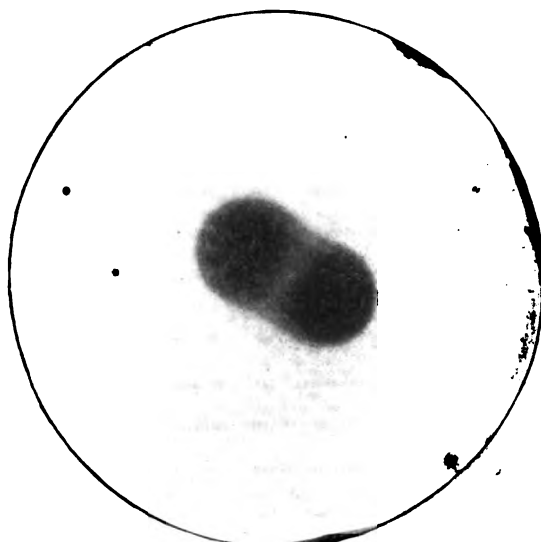


Fig. 2. Case XXVIII. Photograph of Petri plate of culture taken from skin outside the anus before treatment was begun. The large colonies are B. coli; the small, fine colonies are streptococci.

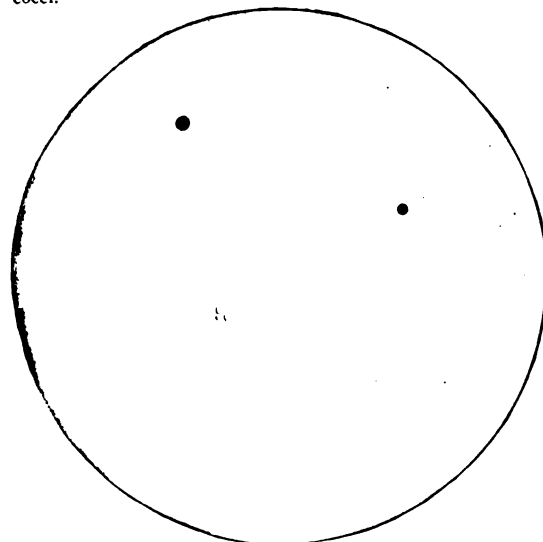


Fig. 3. Case XXVIII. Photograph of Petri plate of culture taken from skin outside the anus four months after treatment with autogenous vaccine was begun, and one month after itching had ceased. Shows few B. coli colonies. No other growth.

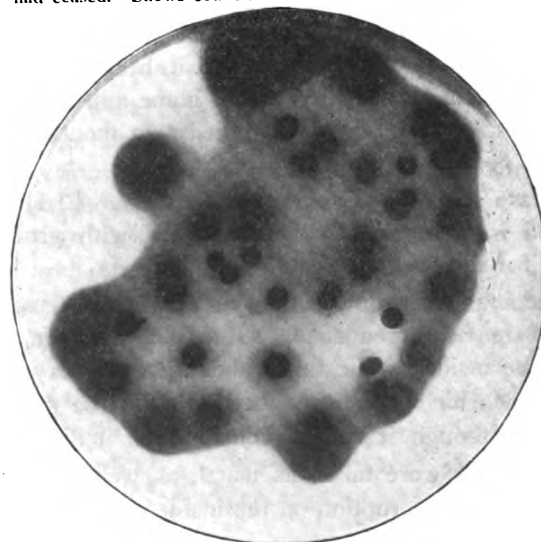


Fig. 4. Case XXVIII. Photograph of Petri plate of culture inside the anal canal. Quite typical of most cases.

## PLATE No. 1. History and Bacteriology of

Case	Age	Sex	Nationality	Weight	Occupation	Duration	Induritis	Constipation	Anal growths	Skin condition	Mucosa	Pigmentation	Pain	Sphincter	Hemorrhoids	Urem	Excretory
20	34	M.	Italian	145	Fodder	1 year	++	No	No	Macerated in folds	Excess +++	Lacking	+++	Normal	No	No	No
21	33	M.	American	145	Physician	4 years	+	No	No	Slight maceration	++	Lacking	++	Normal	No	No	No
22	49	M.	American	153	Physician	30 years	+	No	No	Macerated folds	++	Lacking	++	Normal	No	No	No
23	51	M.	American	209	Physician	5 years	+	No	No	Macerated folds	++	Lacking	++	Normal	One external thrombotic	No	No
24	30	M.	American	123	Barber	12 years	+++	No	No	Macerated folds	+++	Lacking	+++	Tight	No	No	No
25	39	M.	Jewish	134	Broker	9 years	+	No	Yes	Macerated folds	++	Lacking	+++	Very tight	Large internal	No	No
26	67	M.	American	179	Traveling man	30 years	No	Until 10 years	No	Macerated and de- scribed 3 in. each side	+++	Lacking	Many	Normal	No	No	No
27	57	F.	American	119	House- keeper	3 years	+	No	No	Left side macer- ated	At present	Lacking left side of anus	No	Normal	No	No	No
28	43	M.	American	118	Painter	10 years	No	Semi	Internal hemor- rhoids	Slightly macerated	At present	Fair	++	Normal	Internal	No	No
29	17	M.	American	154	School boy	1 year	+++	Diarrhea	No	Slightly macerated	+	Fair	No	Tight	Internal	No	Yes
30	50	M.	American	196	Business Agent	6 years	No	Diarrhea	No	Macerated folds	+++	Lacking	+++	Tight	Internal	No	No
31	23	M.	American	151	Student	1 1/2 years	+	Semi	No	Folds	+	Slightly decreased	Yes	Tight	Internal	No	No
32	53	F.	American	100	House- keeper	15 years	No	No	Two internal skin tags	Macerated in folds	At present	Lacking	At present	Tight	Internal	No	No

11  
12

9 have induritis  
4 no induritis

11 not completely  
12 not completely

9 have anal growths  
11 have anal growths

11 macerated and in  
12 folds

12 have moisture

11 almost in pigment  
12 fair amount pigment

11 have skin fissures  
12 have no skin fissures

12 have normal sphincter  
11 tight  
12 very tight

12 have thrombotic  
11 have thrombotic

12 have none

11 have fissured crypts  
12 have fissured crypts

lack of pigment on the left side of the anus occupying the L. A. Q. The skin about the other portions is normal as to pigment. The usual cultures were taken.

Bacteriologic report: External, streptococci.

She did not accept treatment, and about five weeks later her sister called at the office to tell me that she was greatly pleased that Mrs. B. had not done so on the day of her last visit, because she had been taken ill after her return home and had been ill ever since. The patient died two months later with pernicious anemia.

Case XXVIII. November 15, 1911. F. H. D., aged forty-three, has been troubled with pruritus ani for the past ten years.

Examination showed the skin macerated, fissured, and somewhat reddened. He had a skin eruption on the inside of the thigh about two inches in diameter which had no connection with the pruritic area, although it caused considerable itching.

Cultures were taken as usual, as well as a culture from the eruption on the inside of the thigh.

Bacteriologic report: External, streptococci, pure culture. Internal, B. coli, staphylococci. No growth from skin eruption.

November 21, 1911, the patient received his first injection. Injections were continued in the usual manner until March 26, 1912. The itching began to grow less after the fourth injection, and he made rapid improvement.

Since March 28th we have been unable to find streptococci in the cultures and he has had no itching, except at the site of the skin eruption on the inside of the thigh which still continues.

I show herewith photograph No. II of the Petri dish of the first culture taken in this case; also photograph No. III of the Petri dish of culture taken March 12, 1912. The difference between the two photographs is apparent. He had been without itching for about four weeks. Photograph No. IV is of the culture taken in the anal canal and is typical of all the anal cultures.

This patient at the present time is in splendid condition and very happy to be without his former trouble.

## thirteen additional cases of Pruritus Ani.

Pruritus	Female	Age	Bacteriologic Report	Treatment
No			July 26, 1911, Ext. B. coli few. Strept. +++ Internal B. coli few. B. acidoph. Dec. 13, 1911, External. Strept. + B. coli few.	March 22, 1911, Gave last treatment. No itching of any account since the last of February. Skin about the anus presents a normal appearance.
No			Sept. 5, 1911, External. Strept. +++ Pure culture Internal B. coli. May 16, 1912, External. Strept. 3 or 3 colonies	Oct. 14, 1911, Gave last treatment. No itching since Oct. 6, 1911. Skin now presents a normal appearance.
No			Sept. 15, 1911, External. Strept. +++ Pure culture. B. proteus ++ Internal B. coli few. Dec. 28, 1911, No growth on culture. Feb. 19, 1912, External. Strept. few. May 13, 1912, External. Strept. +++	Has been very irregular about treatments. Still has itching and is under active treatment.
No	Had erysipelas involving the whole hand		Sept. 16, 1911, External. Strept. +++ pure culture. B. coli staph. few.	Was not treated.
No	Yes	Yes, 2 in. from anus	Oct. 2, 1911, External. Strept. +++ pure culture. Int. B. coli. staph.	Oct. 26, 1911, Gave last treatment. No itching of any account since Oct. 9, 1911, though he still has the complete fistula.
No			Oct. 4, 1911, External. Strept. +++ B. coli. Staph. Int. B. coli. staph.	Was not treated.
No			Oct. 26, 1911, External. Strept. +++ B. coli. Internal B. coli 10 in. away. No growth. April 19, 1912, External. Strept. +++	Is still under treatment. He is very much improved.
No	Died two attacks later of peritonitis		Nov. 14, 1911, External. Strept. +++ pure culture.	Was not treated.
No	Eczematous spot on inside of left thigh.		Nov. 15, 1911, External. Strept. +++ pure culture. Int. B. coli. staph. March 12, 1912, External. No growth. Photographs of these two places presented.	March 12, 1911, Gave last treatment (seventeen in all). No itching since Feb. 7, 1911. Skin about anus normal. See photographs at the beginning and end of treatment.
No	General furunculosis.		December 16, 1911, External. Strept. ++ Internal B. coli. staph. No growth from culture of furuncle.	Being treated by Dr. S. B. K., who reports itching entirely stopped.
No			Feb. 19, 1912, External. Strept. +++ pure culture. Internal B. coli few. March 25, 1912, External. No growth.	March 25, 1911, Gave last treatment (six in all). No itching since March 12. May 15 he reported no itching, no moisture, less nervousness. Feels perfectly well and very happy. No other treatment gave him relief.
No			May 16, 1912, External. Strept. + B. coli. ++	A recent patient who has just started treatment.
No	Was operated 8 years ago, proved for worms only.		April 22, 1912, External. Strept. ++ B. coli few. Internal B. coli ++	An out of town patient whose treatment is delegated to her home physician. No report made.

Case XXIX. December 16, 1911. H. O. C., aged seventeen, student.

Examination showed the anterior and posterior skin broken and presenting the appearance of pruritis ani. The patient says that it has itched regularly at night for the past few months. He was brought to me because of a diarrhea; he has also been having a number of small boils over the body.

A series of cultures was taken. No. I, on the skin outside the anus. No. II, at the entrance to the sigmoid. No. III, from one of the furuncles on the arm.

Bacteriologic report: I. External, streptococci. II. Internal, B. coli, staphylococci. III. No growth from furuncle.

Vaccine was made and sent to his family physician. The doctor reports that the itching has ceased.

Case XXX. February 19, 1912. G. H. M., aged fifty, first noticed pruritus ani six years ago.

Examination showed the skin badly fissured,

macerated, and in folds for two and one-half inches from the anus all around. He is troubled with daily as well as nightly itching; his rest is very much interfered with. The usual cultures were taken.

Bacteriologic report: External, streptococci, pure culture. Internal, B. coli, few. At sigmoid, B. coli.

February 24, 1912, the first injection was given in the usual way.

February 28th, he reported that he had a severe reaction, and that the itching for the last forty-eight hours had been less intense.

April 2nd, the patient reported no itching since March 4th. Examination showed the anal skin in excellent condition. All fissures, which were very deep at the time of the first injection, are healed.

May 29th, he reported that he had had no itching, no moisture, much less nervousness, and felt perfectly well and happy. No treatment that he had received ever gave him such relief

## PLATE No. 2

Case	Age	Sex	Nationality	Weight	Occupation	Disease	Duration	Indicanturia	Constipation	Proctitis	Anal growths	Skin condition
6	46	F.	American	115	Housewife	Diseased coccyx	5 years	No	Yes 4 yrs.	No	No	Inflamed
7	46	M.	American	200	Physician	Swollen raphe	2 months	No	Semi	Mild	Yes	Congested
8	46	M.	American	230	Merchant	Fistula	2 years	Yes	No	Mild	Yes	Normal
9	45	M.	American	160	Mechanic	Irritation of anal skin	6 months	++	Semi	Mild	No	Irritated
10	29	M.	American	141	R. R. Agt.	Constipation	10 years	No	Yes	++	No	Normal
11	47	M.	American	183	Physician	External hemorrhoids	2 weeks	No	No	No	No	Normal
12	46	M.	American	190	Physician	Hemorrhoids	1 year	+++	Yes	Yes	No	Normal
13	41	M.	American	200	Physician	Hemorrhoids	3 days	+	Yes	Yes	No	Normal
14	42	M.	German	144	Barber	Ulceration	1 week	No	Semi	Mild	No	Fissured
15	36	M.	American	160	Student	Hemorrhoids	2 years	No	No	No	No	Normal
16	30	F.	American	120	Waitress	Fistula	1 year	Yes	No	No	No	Scar
17	27	M.	Welshman	154	Engineer	Dermoid cyst	6 years	No	No	No	No	Normal

Males.  
Females.

4 had hemorrhoids.  
1 had constipation.  
1 had swollen raphe.  
1 had diseased coccyx.  
1 had irritation of anal skin.  
2 had fistula.  
1 had ulceration.  
1 had dermoid cyst

2 had no indicanturia.  
5 had indicanturia.

4 constipated.  
5 not constipated.  
3 semi-constipated.

5 no proctitis.  
7 have proctitis.

10 have anal growths.  
2 have no anal growths.

2 normal.  
3 irritated.  
1 fissured.  
1 scar.

Case XXXI. April 26, 1912. C. D. S., aged twenty-three, first noticed pruritus ani one and one-half years ago, beginning gradually; it is very intense at night.

Examination showed the skin actively reddened for one and one-quarter inches around the anus and toward the perineum. The usual cultures were taken.

Bacteriologic report: External, streptococci, B. coli, few.

Not yet treated.

Case XXXII. April 22, 1912. Mrs. H. K., aged fifty-three, has had pruritus ani for fifteen years, and has gradually grown worse. Eight years ago was operated on for this trouble and was better for two weeks; after this she was troubled with itching as much as ever.

Examination showed infiltrated folds, maceration, excess of moisture, skin fissures, and lack of pigment for two inches outside the anus. Sphincter ani tight. The usual cultures were taken.

Bacteriologic report: I. External, streptococci, B. coli, few. II. Internal, B. coli.

This patient lived a considerable distance from the city and the treatment was delegated to her home physician.

#### PRESENT CONDITION OF CASES TREATED IN SECOND SERIES.

Case XX. March 22, 1911, gave the last treatment; no itching of any account since the last of February. Skin about the anus presents a normal appearance.

Case XXI. October 14, 1911, gave the last treatment; no itching since October 6, 1911. Skin now presents a normal appearance.

Case XXII. Has been very irregular about treatments. Still has itching, but is now under active treatment.

Case XXIII. Was not treated.

Case XXIV. October 28, 1911, gave last treatment. No itching of account since October 9.

## Control Cases.

Moisture	Pigmentation	Fissures	Sphincter	Hemorrhoids	Ulcers	Diseased crypts	Papules	Bacteriologic Report	Treatment
No	Yes	No	Very tight	No	No	No	No	No strept.	Not treated.
Yes	Normal	No	Normal	Yes	No	No	No	External B. coli. Internal B. coli very few.	Local treatment—cured.
Yes	Normal	No	Tight	No	No	No	No	No strept.	Not treated.
No	Normal	No	Tight	Yes	No	No	No	No strept.	Local treatment—cured.
No	Normal	No	Tight	No	No	Yes	Yes	No strept.	Not treated.
No	Normal	No	Normal	External	No	No	No	No strept.	Operated—cured.
No	Normal	No	Normal	External	No	No	No	No strept. B. coli few.	Operated—cured.
No	Normal	No	Tight	External	No	No	No	No strept. B. coli few.	Operated—cured.
Yes	Normal	Yes	Tight	No	Yes	Yes	No	No strept. B. coli and a pale bacillus.	Local treatment—cured.
No	Normal	No	Tight	Yes	No	No	No	No strept.	Not treated.
Yes	Normal	No	Tight	No	No	No	No	1. B. coli, B. vulgaris. Tested by sugar media. 1. B. coli. 2. No growths.	Not treated.
Yes	Normal	No	Normal	No	No	No	No	1. No growths. 2. B. coli few.	Operated—cured.
7 no moisture. 5 have moisture.	12 normal.	11 no fissure. 1 has fissure.	7 tight sphincter 4 normal. 1 very tight.	6 no hemorrhoids. 3 internal hemorrhoids. 3 external hemorrhoids.	11 no ulcers. 1 has ulcers.	10 no diseased crypts. 2 have diseased crypts.	11 have no papules. 1 has papules.		4 operated. 5 not treated. 2 local treatment.

1911, though he still has the complete fistula.

Case XXV. Was not treated.

Case XXVI. Is still under treatment. He is very much improved.

Case XXVII. Was not treated.

Case XXVIII. March 12, 1911, gave last treatment (seventeen in all); no itching since February 7, 1912. Skin about the anus normal. See photographs of culture at beginning and end of treatment.

Case XXIX. Being treated by Dr. E. B. Kaple, who reports itching entirely stopped

Case XXX. March 25, 1911, gave last treatment (six in all). No itching since March 12th.

May 29th he reported no itching, no moisture, is much less nervous, feels perfectly well and very happy. No other treatment ever gave him such relief.

Case XXXI. A recent case in which treatment has just been started.

Case XXXII. An out of town patient whose

treatment was delegated to her home physician; no report made.

## CONTROL CASES.

I have not given full details in these control cases except to show that none of them were suffering from streptococci infection. In those in which there was an evanescent itching, this symptom cleared up very promptly under local treatment which was also an evidence that none of them was of streptococcic origin.

The object of the control cases is fulfilled, in that they show a variety of rectal diseases that are usually given as causes of pruritus ani, in not one of which was there persistent itching, in most of them none at all.

Case VI. September 1, 1911. Mrs. F., aged forty-six, has been troubled for the last five years with a diseased coccyx. There is considerable irritation of the skin about the anus. The usual cultures were taken.

Bacteriologic report: External, no streptococci.

Case VII. September 6, 1911. G. G. L., aged forty-six, about a year ago noticed a slight itching and a brawny ridge just at one side of the median raphe; there was no typical appearance of pruritus ani. A culture was taken in the usual way.

Bacteriologic report: External, no streptococci.

Local treatment cleared the matter up in a few days.

Case VIII. October 26, 1911. C. T., aged forty-six, has slight itching about the anus after bowel movements; first noticed this about two years ago.

Examination showed an old abscess cavity from which there was a slight discharge. The usual cultures were taken.

Bacteriologic report: External, no streptococci.

The fistula was incised and a cure resulted without further trouble.

Case IX. November 17, 1911. C. A. S., aged forty-eight, has had internal hemorrhoids for several years. Slight itching began about six months ago.

Examination showed a redness and swelling of the skin near the median raphe; otherwise normal in appearance. The case presents no indication of typical pruritus ani. The usual culture was taken.

Bacteriologic report: External, no streptococci.

Two or three local treatments cleared the case up entirely.

Case X. December 18, 1911. F. G., aged twenty-nine, has been constipated since nineteen years of age; no indication of itching in this case.

Examination showed a tight sphincter, two diseased crypts, with chronic proctitis. The usual cultures were taken.

Bacteriologic report: External, no streptococci.

Case XI. January 2, 1912. A. B. R., aged forty-seven, has an external thrombotic hemorrhoid which is a relapse of an old one of some years standing. Culture was taken in the usual manner.

Bacteriologic report: External, no streptococci.

The thrombotic hemorrhoid was operated on. Recovery.

Case XII. January 27, 1912. H. G. G., aged forty-six, a year ago noticed a slight growth which was sore for about one week. Last night he noticed an increase in its size.

Examination showed an external thrombotic hemorrhoid. The usual culture was taken.

Bacteriologic report: External, no streptococci.

This case was operated under local anesthesia. Recovery.

Case XIII. February 3, 1912. W. F. L., aged forty-one, has had an external thrombotic hemorrhoid as the result of a fall upon the ice. The usual culture was taken.

Bacteriologic report: External, no streptococci.

This case was operated under a local anesthetic, a complete cure resulting.

Case XIV. February 12, 1912. E. J., aged forty-two, about one week ago noticed a tickling and smarting sensation after bowel movements. Has been somewhat constipated for several years. Uses tobacco in excess. Gives a positive reaction to the Wassermann test.

Examination showed irritable ulcer just above Hilton's white line. The usual culture was taken.

Bacteriologic report: External, no streptococci, B. coli, few, pale bacillus.

The case recovered under local treatment.

Case XV. February 15, 1912. H. F. G., aged thirty-six, complained of an external hemorrhoid which was the result of a strain. Examination showed large internal hemorrhoids with several smaller ones. The usual cultures were taken.

Bacteriologic report: External, no streptococci.

Case XVI. February 15, 1912. Miss C. A. W., a 'ssæcsæ jæpæ æ pæy oðæ reæl æno 'æpæ pææææ fistula resulting; she passed considerable blood.

Examination showed a fistula opening externally on the right side about one and one-half inches from the anus. The probe passed entirely through into the anal canal. There was also a chronic abscess of the right Bartholin's glands, with pus discharging from it. A culture was taken in the usual manner.

Bacteriologic report: External, no streptococci.

I did not operate on this case.

Case XVII. February 19, 1912. R. C., aged twenty-seven, about six years ago had an abscess. He said there was no pain about it, but a smarting discharge. He had been operated on, but was not improved.

Examination showed a dermoid cyst in the anterior wall of the rectum. One inch above Hilton's white line, an opening communicated with the anal canal. I operated and removed quite an amount of hair from the cyst. Culture was taken in the usual manner from the external parts.

Bacteriologic report: External, no streptococci.

The patient made a complete recovery.

The conclusions of last year's work still hold true and should be read in connection with the following conclusions based on experience with my second series of cases.

## CONCLUSIONS.

1st. It is shown by the nine hundred consecutive cases of rectal diseases that constipation and hemorrhoids or any lesion are coincidental and may be predisposing causes of pruritus ani.

2nd. Even when there is a discharge of pus or other moisture on the skin about the anus it is not the actual cause of pruritus ani, unless there is a streptococcic or other infection of the skin. They may exist together, but are a coincidence.

3rd. All investigators in making cultures should use, in addition to the hard media, the liquid media and Gordon's series of carbohydrates if they wish to differentiate the streptococci and other bacteria.

4th. Avoid excessive reactions.

5th. Use small initial doses.

6th. Give subsequent injections only after the previous reaction has completely subsided.

7th. I would suggest the following change in the nomenclature of pruritus ani by recognizing two varieties: Pruritus ani simplex and cocci-genous pruritus ani.

800 University Block.

## REPORT OF TWO PECULIAR CASES OF DERMOID CYSTS.\*

By WILLIAM E. LIPPOLD, M.D., Brooklyn, N. Y.

On account of their peculiar nature, I deemed these two cases of sufficient importance to bring them before you.

Case I. Man, aged thirty-one, good physical condition. History negative. Patient came to me on account of a peculiar feeling of moisture at the bottom of his spine for the past three weeks.

On examination I discovered an opening the size of a pin head. I probed this and found that the probe entered about three inches toward the rectum.

I advised that the fistula be laid open and did the operation one week later. I extracted a mass of coiled-up hair, curetted, packed and kept it open until healed.

Case II. A man, aged twenty-six, came with a history of having been struck on the back with a board in which there was a nail. As evidence he showed me the hole where the nail had entered toward the spine. On probing I found a fistulous tract about two and one-half inches long. After

various measures of closure had been tried, operation was resorted to. The fistulous tract was opened and we were again rewarded by finding a roll of hair.

Both of these cases were evidently dermoid cysts and were very slow to granulate.

197 St. Nicholas avenue.

## Surgical Gleanings

**The Pfannenstiel Incision.** — Dr. M. v. Holst (*Münch. med. Wochensch.*, No. 17, 1912) is strongly convinced of the value of the transverse fascial incision of Pfannenstiel in abdominal surgery. Up to the close of 1911 he employed this method in 450 cases. Of these 250 were later examined and it was found that hernia occurred in none of those healing by primary union and in only 1 per cent. of those healing by granulation. Such a result had not been previously obtained with any other method of opening the abdomen. The objection made against this method, that it does not permit of a good view of the field of operation, was not found to be justified; in fact, the contrary obtained. It was found possible to remove tumors as large as a man's head without any special difficulty. One of the important advantages is that the intestines are not likely to protrude, and therefore are not exposed to drying, cooling or contact. In closing the abdominal incision the peritoneum is united with a running suture of iodine catgut and the recti with iodine catgut button sutures, while the external wound is closed with thin silk button sutures. This method permits the patient to get up early after operation, usually on the fourth day.

**Delayed Chloroform Poisoning.** — Dr. S. M. Fischer (*Publication 6, issued by Med. Faculty Queen's Univ.*, June, 1912) says that a survey of the literature seems to show that serious symptoms do not develop in the human subject unless anesthesia has extended over thirty minutes; that such symptoms are more prone to develop in anemic and cachectic patients and those suffering from diseases where hepatic deficiency may be premised. In dogs, symptoms of poisoning can almost invariably be produced if anesthesia lasts two hours or if the animal is anesthetized several times at short intervals. With ether anesthesia delayed poisoning, while recorded several times, is almost unknown. With such a knowledge the field for chloroform anesthesia becomes narrowed and its limits of safety better defined. There can be no doubt too, that altogether apart from the serious train of symptoms recorded as characteristic of delayed chloroform poisoning, milder degrees occur and are recovered from. Thus the transient icterus noticed at times after chloroform anesthesia without other evident cause, and such conditions as restlessness, mild delirium, dazing and drowsiness may be instanced as signs of milder intoxications.

\*Presented before the Staff Association of the Williamsburg Hospital, April 1, 1918.



PUBLISHED

BY THE

**International Journal of Surgery Co.****FRANK C. LEWIS, M.D., Managing Editor.**

100 William St.—Woodbridge Building.

NEW YORK, N. Y., U. S. A.

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**Editorial Department**

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**NEW YORK, SEPTEMBER, 1912**

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**THE FUTURE STATUS OF THE GENERAL PRACTITIONER.**

It was Professor Jacobi, we believe, who once said that the general practitioner was becoming a directory for the specialist. That was many years ago, and his prophecy has been fully justified. Unless conditions change there will be a constant increase and extension of specialism at the expense of the man in general practice, at least in the large centers of population. Unfortunately, the practitioner has been largely responsible for this tendency. He has lost his self-confidence and reliance, and many a case is referred to others that he should be able—and often is—to properly manage himself. The observant laity, too, has not been slow to take notice, and we are witnessing the curious spectacle among the wealthier classes of a staff of consultants in place of the family physician. One gentleman of our acquaintance—and no doubt he has many a prototype—boasts of having had a different specialist for well-nigh every ailment with which he and the members of his family have been afflicted. Among his list is a surgeon, an ophthalmologist, a laryngologist, a dermatologist, a neurologist, a gynecologist, a gastro-enterologist, and pediatricist, so that there is little left for the man whom he speaks of as his family doctor—a doubtful honor, to be sure.

Although the growth of specialism is a natural trend, since it is encountered also in other sciences, we believe that in medicine its influence has not been altogether for the general good of the profession and of the public. We further believe that the greater attention which is being devoted in our medical schools to imparting a knowledge of the special branches and the extension of post-graduate instruction will result in a line of general practitioners fully equipped to treat many cases nowadays commonly referred to specialists. No one can ever successfully compass the entire field of the medical sciences, but there is bound to be a more equitable division of the work in the future. As conditions now are, every young graduate aspires to be a specialist because he thinks it means an easier life and greater remuneration. The result of this has been a multiplication of men doing operative work and much useless and harmful tinkering. A greater interest on the part of the practitioner in the special branches will therefore not only extend his own sphere of usefulness, but serve to elevate the general status of those who devote themselves exclusively to them.

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**NEOSALVARSAN AND SALVARSAN.**

The treatment of syphilis with salvarsan has reached the stage in which its effectiveness as a remedial agent is no longer questioned. It is true that a majority of observers are of the opinion that the best permanent results are obtained by the administration of mercury in conjunction with salvarsan, but it is equally true that the new arsenic therapy has placed in our hands a weapon against syphilis which is of inestimable value.

The time is still too short to speak definitely on the effect of neosalvarsan—the improved salvarsan. Nevertheless, sufficient observations have already been made by those who have been using it experimentally, to indicate that it possesses practically the same, if not greater, therapeutic potency in syphilis as salvarsan.

Neosalvarsan has certain decided advantages over its predecessor. It is readily soluble in water, with a neutral reaction. This renders it unnecessary to add sodium hydroxide for alkalization, and the patient is thus spared the severe reaction and other disagreeable sequelæ which are due to the presence of this alkali. This is not only true in the intravenous injection, but still more so in the case of the intramuscular

mode of administration. It is well to recall the difficulties and annoyances that were inseparable from the intramuscular injection of salvarsan, as advocated in the early days of its introduction by Wechsellmann, Michaelis, Alt and others. The pain was usually very great; severe infiltration, necrosis and gangrene were not at all rare, and acute inflammatory reaction, necessitating rest in bed for many days, was the customary result of the injection. This was due in great measure to the sodium hydroxide that was used in converting the acid solution to one of a neutral or faintly alkaline character.

My own observations\* in connection with the employment of neosalvarsan leave no shadow of doubt of the painfulness of the intramuscular injection when the powder is dissolved in sterile distilled water. This method, tried in a fairly large number of cases, proved too painful for ordinary use, but the amount of suffering experienced by the patients is evidently but a fraction of that endured by the early beneficiaries of salvarsan given intramuscularly. When dissolved in water and thus injected, neosalvarsan does not cause the severe local reaction formerly observed; it is simply painful, a pain not unlike that which many patients complain of in connection with the intramuscular administration of mercury salicylate or bichloride. When, however, the neosalvarsan is suspended in pure glycerin and then dissolved by the addition of distilled water, according to the method I have previously described, we have an intramuscular injection that is practically painless, and in the majority of cases absolutely so.

This, then, is a decided advantage of neosalvarsan—that it can be given intramuscularly without the need of being neutralized by the addition of sodium hydroxide. The same advantage obtains when it is given intravenously, as we then introduce nothing into the blood but the substance itself and the distilled water in which it is dissolved. In this connection, it is worthy of note that experience has shown that the more concentrated the intravenous solution, the greater is the therapeutic effect. Consequently, instead of injecting 300 c.cm. as we do with salvarsan, we inject but 120 c.cm. of neosalvarsan solution. This is also of decided advantage.

Neosalvarsan causes much less constitutional reaction than salvarsan. In fact, the reaction, if there be any, is hardly perceptible and is seen

principally in a slight rise of temperature. In several hundred injections thus far given, I have seen but one case of vomiting after the operation. Chills and nausea, faintness and diarrhea, such as are sometimes observed after an intravenous injection of salvarsan, are never encountered with the new preparation, particularly if the rule to use none but freshly distilled water is adhered to.

Absorption is much quicker and elimination is also much more rapid than is the case with salvarsan. Reinjections of neosalvarsan have been given at intervals of two days, without untoward effect; this cannot be done with salvarsan with safety. It has been noted that the best results with the new preparation are obtained with injections repeated at intervals of four days. In this manner, it is evident that a more direct and lasting attack on the spirochetes can be made, because of the brief intervals between the injections, as compared with the longer intervals in the case of salvarsan. It is also apparent that neosalvarsan is thus enabled to influence certain forms of spirochetes which are not reached by the slower action of salvarsan, and to this extent is capable of affecting many cases of tertiary lues which are not amenable to the latter. This observation has also been made in a recent communication by McDonagh (*British Medical Journal*, June 8, 1912). He believes that from three to eight injections are required for a cure of syphilis, with mercury administered simultaneously.

The arsenic content of neosalvarsan compares with salvarsan in the ratio of two to three; that is, 0.9 gm. neosalvarsan is the maximum safe dose, as compared with 0.6 gm. salvarsan; for women, the usual dose is 0.75. For children, the dose varies from 0.05 to 0.15 gm., according to age and general condition. I have personally administered three intravenous injections of neosalvarsan to a fairly vigorous boy, five years old, with primary and secondary lues; the first dose was 0.2 gm., the second, six days later, was 0.3 gm., and the third dose, five days after the second, 0.45 gm., a total of 0.95 gm. in a period of eleven days. The lesions responded perfectly and there was no reaction or ill effect of any kind whatever after the injections.

Comparing the two remedies, we may justly conclude that neosalvarsan will in all probability supplant salvarsan as the most potent anti-syphilitic weapon in our possession. Its ease of administration, the absence of disagreeable after-effects in the intravenous form of administration,

\* *Medical Record*, July 27, 1912.

and the possibility of a practically painless intramuscular injection, which can be repeated at frequent intervals, lead to the opinion, which I am confident is shared by many who are conversant with the facts, that neosalvarsan will play a most important part in the world-wide campaign against syphilis.

ABR. L. WOLBARST, M.D., New York.

## GYNECOLOGICAL HINTS.

By RALPH WALDO, M.D., New York.

It is a bad practice to give purgatives a day or two before performing a laparotomy. If you do, the patient is apt to suffer severely from gas pains for several days following the operation, and an evacuation from the bowels is difficult to obtain. If the operation is to be performed in the morning, a simple enema should be given the night before, and if during the afternoon, this should be done the same morning.

As soon as a patient has been put to bed after a laparotomy an enema of one pint of hot water (110 F.) containing one ounce of whiskey should be administered. This hastens reaction and prevents the severe thirst that is so apt to follow laparotomies. Hot saline is not absorbed as rapidly as hot sterile water and so should not be used.

If a patient is thirsty after a laparotomy small quantities of water, hot or cold, should be given at short intervals. I usually instruct the nurse to let the patient have all the water she wants in teaspoonful amounts. If a large quantity of water is given at a time, it is apt to cause vomiting. On the other hand, a small quantity at frequent intervals will frequently arrest nausea and vomiting.

Severe vomiting with possibly acute gastric dilatation will be very much relieved by washing out the stomach. In fact this procedure will save many a life.

The too free use of cathartics following a laparotomy usually does more harm than good. A simple enema once or twice a day is usually all that is necessary.

A rectal tube inserted four or five inches once in two hours, and allowed to remain twenty minutes each time, will frequently allow gas to escape and stimulate peristaltic action.

## Department of Railway Surgery

### OFFICIAL ORGAN

THE ASSOCIATION OF SURGEONS OF THE SOUTHERN RAILWAY.  
ASSOCIATION OF SURGEONS OF THE PENNSYLVANIA LINES.  
ASSOCIATION OF SURGEONS OF THE SEABOARD AIR LINE RAILWAY.

### REFLECTIONS OF A QUIET HOUR.\*

By J. H. MITCHELL, A.M., M.D., Mt. Vernon, Ill.

In accordance with the custom of our association the president is expected to deliver an address that must, in some measure, conform to rule and the importance of the institution which he serves.

Under such conditions you have placed your present incumbent in a position that he feels entirely unable to fill in a manner satisfactory to himself, according to his idea of the greatness of the occasion and the demands of those who form this association. Hence the subject of this address.

As you do not place any particular restriction upon the subject matter allotted to the president's address, in the beginning, I certainly hope that after the announcement of this subject, you will not accuse the writer of being afflicted, in the language of expert alienists, with "brain storm" and even much less with "brain fog."

From the point of view of your president, after many years' association with you, I am convinced that there is not a grander body of men in existence; grand as citizens, speaking from a general viewpoint; grand in your chosen work, not merely from the standpoint of dollars and cents, but as carriers of comfort and sunshine into many, many homes, not to say hovels where comfort is otherwise unknown, without any possible expectancy or hope of financial reward (here often your best service is rendered because of your love for everything that an all wise Creator has seen fit to place in existence, and especially those created in his own image); grand in your untiring endeavors to bring forth measures that are new and better than those that have preceded, for the accomplishment of comfort to those in distress; grand in that, as a rule, your effort is applied to every measure advanced for the betterment of the communities in which your lot is cast, even to the sacrifice of health, means and comfort.

You will excuse any appearance of throwing bouquets, because such is not the intention of

\* President's address, delivered at seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

the speaker, but it is an expression of his real knowledge and feeling after quiet thought and study.

The association of the speaker with you for many years has led him to know that everyone of you is more or less conservative, still optimistic, whenever possible, turning the dark side to the light and bringing the disease conquering and trouble disseminating sunshine into the gloomy shadow.

Your office as railway surgeon is peculiar and exacting, different from that of the surgeon specialist in that you are often summoned on the instant and just as you are, without a moment's time for extra preparation, to care for many injured persons, men and women, who are entire strangers to you and whose injuries are as various as the number of those afflicted. Then, too, they may be entire strangers to each other and to the surroundings; persons of education and those who are densely ignorant; persons who have wealth and those who have none—even their small savings having been exhausted in the preparation for the journey; persons from different communities, states and even different nations. The undertaking is great and equally as important. Indeed it is such as to require the greatest strength there is in one—mental, physical and moral. And, while not apparently so, it demands constant thought and preparation as well as peculiar fitness—every faculty must needs be educated and alert.

Again, your office should be that of conservation, to use a homely phrase, and not of destruction; "conservation of both life and limb." The veriest tyro may cut off and mutilate, but it requires thought, courage and skill to save and build anew.

And again, your office often is that of adviser, but also of admonisher, in both character and mental and physical development, as the man who is qualified and worthy of the name of doctor should be.

You are one in whom the railway company, through its chief surgeon, has placed confidence enough to appoint and to retain you in the honorable position you now occupy—a position that is such as to presuppose that you are to be looked upon as an adviser and leader in many other fields than that of your special work. I wish that I could portray the picture as it richly deserves, but this seems impossible. Though I could wield the pen of an Agassiz, the brush of an Angelo,

or the eloquence of a Simpson, even then I should leave out some essential point of the picture.

But I must pass on to other topics.

I wish that I could bring to you a message as new and as important as that brought to you by my sixteen able predecessors, but I am afraid that I shall fail materially. However, to use an old and familiar phrase, I can but profit by their successes, rather than fail. I am constrained to believe that it is a much more complex undertaking to follow in the footsteps of sixteen men, each one trying to measure a distance beyond the one who has preceded him, than to follow in the footsteps of one man, even though you try but to equal the pace of each one.

In undertaking to bring to you something new and equal to that of my predecessors, I am aware that every thought and position will be sifted as fine sand; that the good will be approved, but any careless expression or position assumed will be relegated to the failure class as it justly deserves.

As railway surgeons we cannot take measures for granted and jump to conclusions, as thereby our work would prove disastrous. We are supposed to be untiring students and investigators, weighing carefully every assertion and proposition that comes into our lives ere we give it our approval.

In this address your speaker will not undertake to enter into the classical, by going back into the history of the past, seeking to add luster to the names of those worthy of the highest praise and to their great accomplishments (a theme that is ever new in the pleasure that it gives one to contemplate), but to speak in the present to each one of you, as men who are able to accomplish not merely one great act but many that are worthy of name and praise.

Just here I wish to thank you for the very high honor you have conferred upon me, first in receiving me as a member of your association and then in electing me to the high and very honorable office of president. It is an honor that deserves the best effort of any man, and I only wish that I could feel that it has been worthily bestowed.

The Southern Railway System extends over a vast territory and conveys from point to point, and from state to state, many thousands of precious lives, and its officials, in their desire to make safe and comfortable these many lives, are among the pioneers of railway companies to recognize the usefulness and importance of associa-

tion of their surgical staff. It is evidently their aim to make this one of the best, if not the best, of its corps of employees, and thus sprang the embryo of the Association of Surgeons of the Southern Railway—and from every appearance a very healthy embryo, as through careful yet vigorous training it has grown into a very formidable organism; an organism that, although unpretentious and not inclined to be meddlesome, when to be officious is unmanly and not for the greatest good of all concerned, is one whose influence is to be respected in every great movement toward the conservation of life and health.

I do not claim any priority in the use of the word "conservation." We have heard and seen it used occasionally during the last few years with reference to forests, streams, etc., however much less frequently where life and health are concerned.

You will pardon me if, at the beginning, the position taken has any appearance of not being in connection with the railway service, as I believe that every railway organization is vitally interested in the subject of public health, especially from the standpoint of intelligent and scientific accomplishment. And while I do not wish to detract in any measure from the usefulness and the good that is being accomplished by the legal department, I do advocate the placing of affairs relating to life and health under the control, more conspicuously, of those whose training best qualifies them for the successful management thereof. The relation between the law and medical department is very close, or should be, as our work and interests are toward the same great end. The work of the law department, however, is, *per se*, the safeguarding of the interests of the company against the rapacity of the financial barnacles or microbes that seek lodgement and thereby existence, without any effort toward earning it. That of the medical department is the conservation of not only the financial interests, but also the humane interests—physical, mental and moral.

Is it not apparent, then, that under these conditions a well appointed central or directing head would be better qualified to plan and institute wiser and saner methods of procedure than one who has not received special training and devoted special study and investigation to preserving intact the health and comfort of the people of our great nation?

To be plain, and without further preliminary, we should exert our best efforts to encouraging

a National Department of Health and Hygiene, viz., push forward the passage of the Senate bill, known as the Owen bill, which, as members of a profession that as a rule is unselfish and unmercenary, we know, or at least honestly believe, will be to the best interests of every institution that is engaged in legitimate business. We are aware that such a movement is being bitterly fought by many sects who make the claim that such a measure is merely in the interest of the medical profession as represented by the American Medical Association, and against individual freedom. We confidently believe from careful investigation that this does not mean so much individual freedom as individual license.

It seems unwise that any task so vastly important to the well-being of a nation, state or even borough, should be delegated to any of the existing departments, i. e., State, War, Treasury, Navy, Interior, Agriculture, etc.; these as a rule have about all they can do in their special fields of work, and are not qualified to act as health advisers because of a lack of special training and knowledge, but must necessarily attach to them men who, though qualified, are not authorized to act, except with restrained authority.

We can but note the wonderful results that have been accomplished in a few short years since measures for the preservation of the national health have been more conspicuously placed in the hands of medical men with national support.

We are aware that many and, we may add, most important measures for the preservation of health have received for a time the condemnation of a large number of persons who, if previously properly advised, and waiving selfish motives, would lend their full approval. For example, it is not so many years since we were advised by teachers and men of education, that the common housefly was a blessing in disguise as a scavenger, in that it devoured much that if left alone would prove disastrous to health. And again, the mosquito was considered an almost indispensable succorer, especially in what are termed malarial districts, as it was supposed to carry along with its interesting dagger the necessary means to ward off "chills and fever." This is in no wise a fairy story, but a formerly entertained scientific axiom, that everything was created for some good purpose and that this applied even to the mosquito, etc. It has been the privilege of your speaker, during his short life, to witness the pleasure and satisfaction derived by those who had been thus trained in the act of letting the pest inoculate

them against exposure to the poison of miasm. But how very much we have changed. As the result of careful investigations and tests we are taught to fear and avoid the presence of the fly and mosquito as a pestilence.

Examples like the above might be multiplied many times wherein conclusions have been hastily, if not leisurely, drawn from purely *self-willed* ideas, without careful and conscientious investigation.

Among the number of those who are active in opposition to the Owen bill may be mentioned the so-called League for Medical Freedom, composed of antivaccinationists and anti everything else that is the outcome of careful, untiring investigation and thorough study for the preservation of health and thereby happiness.

A department of health, though an innovation in the regular order of governmental affairs, will prove an invaluable auxiliary if at the head of an institutions so important as that of hygiene, are placed those whose whole interest and training peculiarly fit them for so vast an undertaking.

As has been intimated in a former part of this address, our association is a healthy organism and capable of doing large things. Being representatives of many communities, in many states, it should be possible or even probable for us, by untiring and rightly directed effort, to help to accomplish even so great an innovation.

In closing this address, I feel that I should be unusually remiss in my duty if I should fail to refer with love and reverence to those of our members who, since our last meeting, have closed their lives—lives of usefulness—and have gone home for the reward of good and faithful men. I cannot refer to all of them personally, as I have not been advised as to who they are, but I do know of the death of Dr. Rhett Goode, of Mobile, Ala., a former president of this association. I first met Dr. Goode in Richmond on the occasion of the meeting of the International Association of Railway Surgeons. I was very pleasantly impressed with him at that time, but learned to love and respect him enduringly on the occasion of my first meeting with this association in his home city. And, although I have seen and associated with him a number of times since, I have never found cause to change my first impression or to regret in the least degree my full confidence in him. To the loved ones and friends we extend our sincere respect and sympathy and commend them to the loving care of an all wise Father, who controlleth all things for the best.

Gentlemen, I thank you.

## CORNEAL INJURIES.\*

By J. G. JOHNSTON, M.D., Chester, S. C.

At the beginning of this paper I wish to say that the points referred to therein are largely based upon experience; while some of the observations have been taken from the writings of others, the majority of them have been made by me from time to time in my work along this line. If I can only be the means of inducing the men who see these patients first to properly care for them, thereby saving much unnecessary suffering as well as not a few eyes, the purpose of this paper will be amply fulfilled.

Injuries to the cornea may be of many kinds and of varying degrees, all the way from a small foreign body lodged on it to laceration of part or the whole. It would require too much time to refer to all of these in this short paper; so we will discuss only three varieties: non-infected, infected and perforating injuries.

Non-infected wounds are those simple ones which, properly cared for, will heal and leave the eye in good condition, without having endangered it.

Infected wounds comprise those which are inoculated at the time of the injury with some pathogenic organism, such as may cause loss of sight and sometimes destruction of the globe.

Perforating wounds are those that pass through the substance of the cornea and into the anterior chamber of the eye. Such wounds may be either non-infected or infected.

The treatment of uncomplicated non-infected wounds of the cornea is very simple, the only thing necessary being the removal of any existing foreign body from the eye, a thorough disinfection of the wound, and the use of some simple wash for a short while. If the injury has been inflicted with some infected object, things assume a more serious aspect, for you must not only remove any foreign body that may be present and thoroughly disinfect the wound, but also resort to some means to destroy any germs that may have escaped the disinfection of the eye when the case is first seen. One of the best ways of thoroughly disinfecting such an infected injury and at the same time putting it in good shape for prompt healing is by making a light application of tincture of iodine to the wound. This is painful, but it is the most effective disinfectant that we have, and by making a small mop, putting only a small amount of the tincture on it and letting it dry somewhat before applying it to the eye so there will be no excess, the pain will be very

\* Read at seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

much lessened. The use of cocain helps somewhat, but does not prevent the pain entirely. If any excess of the tincture be present, it may be washed off in a few seconds, but it is usually preferable, by holding the eye open for a short while, to let it dry on the wound, as it seems to exert a more thorough disinfectant action as well as being more stimulating to a healthy growth of the new corneal tissue. This should be followed by application of some good antiseptic to the eye at frequent intervals by the patient or nurse. For this purpose I know of nothing that excels argyrol in 25 to 50 per cent. solution. This possesses the additional virtue of being practically painless if a fresh solution be used, and consequently will be applied more faithfully than a remedy that is painful.

It is often necessary to dilate the pupil with atropin in these conditions as it prevents iritis, relieves the ciliary congestion, and renders the eye more comfortable, and I cannot but believe it helps to prevent serious infection of the deeper structures. Many times have I noticed that almost as soon as the atropine had been dropped into the eye, the cornea seemed to lose its misty appearance, and in a few hours the conditions for prompt and complete recovery seemed much more favorable. In these cases I am very partial to hot applications to the eye every three or four hours. These should be of sterile water as hot as can be borne comfortably, which may or may not have some mild antiseptic in it. Frequently it is thought best to cauterize these wounds with carbolic acid or the actual cautery. Cocainize the eye, of course, before this is done and there is very little pain connected with it.

Perforating wounds of the cornea include the most serious injuries of that part of the eye, because in their treatment from the nature of the case we often have to take into consideration the other ocular structures. The iris is very often caught between the lips of the wound and has to receive attention. Again the injury may cause some damage to the lens that must of necessity be cared for. The simplest forms of perforating wounds of the cornea require only cleanliness, dilatation of the pupil with atropin, and a bandage to keep the eye quiet and to assist in coaptating the edges of the wound. If the intra-ocular pressure is so great as to cause the iris to protrude and be caught between the edges, we must first replace the iris intact, or if that be impossible, clip off the entangled part so that we can get it out of the wound. If the agent that caused the wound is infected, then we must use extra precautions to prevent the formation of pus or infection of the other structures of the eye.

In this connection, I would say that in these conditions where there is danger of general infection I like to irrigate the eye quite often, say every two or three hours, with a weak bichloride or carbolic acid solution. I have been surprised on more than one occasion at the amount of pus that the eye could safely take care of, provided that we prevented any later outside infection from making matters more serious. If we could see most of these cases in time we could prevent much of this infection, but a great many of them are not seen by the ophthalmologist, for various reasons, until it has already been set up. It may happen that pus has already formed in the anterior chamber and all your irrigating and other treatment fails to cause its disappearance or even a reduction in quantity, but each day you find the eye looking a little redder, the hypopyon a little larger, and possibly the pain a little greater. Under these circumstances I know of nothing so apt to help matters as to make an incision in the cornea, at the lowest part usually, thoroughly wash out all pus from the anterior chamber, and fill the eye with a 50 per cent. solution of argyrol. This, followed by the usual line of antiseptic treatment and regular irrigation of the eye, will nearly always bring about permanent arrest of pus formation and with proper general tonic treatment should result in complete restoration. This does not necessarily mean that vision will be good, for you may have no return of vision at all, but if the injury goes no deeper than the anterior chamber there should, and very probably will be vision. Sometimes the injury to the cornea may be of such a nature from its length, breadth or otherwise that you cannot count on the edges of the wound being brought together, or in case they come together you may have trouble in keeping them in apposition by a bandage or any other means that your ingenuity might originate. Stitches might be used to coapt the edges, but in the cornea they are never very satisfactory; besides each needle puncture in the cornea leaves a small opaque spot that remains for life. It is possible to overcome this difficulty occasionally by suturing a strip of conjunctiva over the wounded area of the cornea, thus preventing infection as well as exerting sufficient pressure to prevent gaping of the wound by something that will not be displaced until you are ready for its removal.

Simple divulsion will sometimes cure a case of hemorrhoids.

Divulsion may be done under local anesthesia by means of the infiltration method with one-fifth of one per cent. cocain.—*Dr. Jerome Wagner.*



## Surgical Gleanings

**Treatment of Malignant Tumors with Mesothorium and Thorium.**—According to Professor V. Czerny and Dr. A. Cann (*Münch. med. Wochens.*, No. 14, 1912) these preparations are at least equal in efficiency to radium, and from their experiments it seemed that their superficial action was even more marked. For this reason they appear to be superior to radium in the treatment of superficial cancers, angiomas, lupus, or keloids, while their effect upon tumors as determined by microscopical examination was similar. The best results were obtained in lupus and angiomas, which subsided rapidly, though carcinomas and sarcomas were more refractory. Mesothorium, however, is not to be regarded as a specific against cancer, but as a very serviceable local remedy in combination with other treatment. Altogether 125 cases were treated including 85 carcinomas, 12 sarcomas, 8 lympho-sarcomas, 1 endothelioma, 6 angiomas, and 8 tuberculomas. In 19 of 32 cases of recurrent cancer of the breast distinct subjective and objective improvement could be noted. Thorium X was tested in only 36 cases, comprising 31 of cancer and 5 of sarcoma, being introduced either into the tumor, administered intravenously, or used in both ways. The intravenous administration sometimes caused unpleasant constitutional effects and frequently local reaction consisting of redness, sensitivity, and swelling of the growth, followed by shrinking and hardening. Direct introduction of the remedy into the tumor was generally well tolerated and usually gave rise to more or less hardening of the mass. Although the time is too short to permit of positive deductions Czerny states that in 40 to 50 per cent. of the cases a beneficial effect upon the growth was observed, particularly from mesothorium.

**Gastroenterostomy in Ulcer of the Stomach.**—Dr. A. Kocher (*Münch. med. Wochens.*, No. 19, 1912), in a paper read before the last meeting of the German Surgical Society, reported 80 cases of undoubted gastric ulcer treated in his clinic for the last three years. A differential diagnosis between ulcer and cancer was made with the Gluzinski test, which proved very valuable. In 70 cases gastroenterostomy was performed, but radical operation in only 10. The mortality from the former was 1 per cent.; from the latter 10 per cent. The after-history could be traced in 50 cases, with the following results: There were insignificant disturbances in 10 and an unsatisfactory outcome in 2 instances. One patient had to be laparotomized again and 2 died of cancer, while 50 were restored to perfect health. Hyperacidity never developed after the operation. Roentgen examination at a later period showed that the anastomotic opening was chiefly utilized in the passage of food, this being responsible for the healing of the ulcer and the removal of the

disturbances. The operation also appears to act as a preventive of cancer, which occurs in a very small percentage of cases, this being probably due to the removal of the hyperchlorhydria. All ulcers showing suspicions of cancer should be treated radically.

**Simplified Operation for Congenital Wryneck.**—Dr. C. M. Jacobs (*Med. Council*, July, 1912) recommends after the third year of birth tenotomy performed in the following manner: 1. A sand bag is placed beneath the neck of the nonaffected side, which puts the contracted tissues on the stretch. 2. A vertical incision, three-quarters of an inch in length, is made between the two heads of the sterno-cleido-mastoid muscle, to within one-half inch of the clavicle. 3. The incision is made through the skin and platysma muscle, exposing the sheath of the sterno-mastoid muscle. 4. The more contracted tendinous head of the muscle is then made to present in the wound, and a grooved director is passed beneath, upon which the tendon is completely divided. 5. The other tendinous head will now stand out as a tense band, which is likewise made to present in the wound and is divided. 6. Introduce the finger into the wound and search for various muscular or aponeurotic bands, which should be cut. 7. Be careful not to injure the anterior jugular vein behind the sternal head, nor the external jugular and subclavian veins behind the clavicular head. 8. Close the skin incision with interrupted sutures of fine chromic catgut, without drainage. 9. Apply sterile dressing. 10. The head and chin are maintained in the overcorrected position by a plaster-of-Paris cast extending to the pelvis. 11. The cast, unless soiled or broken, is not removed for ten or twelve weeks.

**Surgery of the Thymus Gland.**—Dr. Charles H. Mayo states that there is a lack of uniformity in opinions as to what constitutes a persistent thymus. It has been shown that a decision should not be made on macroscopic examination alone, but that a microscopic investigation is also essential. The effect of previous infective diseases on the structure of the thymus is an important consideration in determining the normal. It is held that an enlarged thymus is commonly associated with goiter, and that this condition is responsible for many of the post-operative deaths. It has also been stated that many of the deaths from anesthesia are due to an enlarged thymus in association with a "status lymphaticus." From the series of deaths following operation for exophthalmic goiter in the Mayo clinic this view of the importance of the thymus is not supported. In some of the cases the thymic structure proved to be nothing more than a vestige, and but one case gave evidence that the thymus was a factor in the death. The treatment indicated for an enlarged thymus which is producing symptoms is thymectomy. The operation is not difficult, as a rule, and the only evil consequences which have followed it have been due to sepsis or other complications, and not to the operation itself.

**Duodenal Ulcer.**—Professor August Bier (*Deut. med. Wochens.*, Nos. 17 and 18, 1912) has operated upon 23 cases of duodenal ulcer in the last four and one-half years, which is a very small number compared with that treated by English and American surgeons. He believes, however, that the disease is much more frequent in Germany than the reports would indicate. The operation of choice in Bier's clinic was posterior gastroenterostomy with short coil if considerable stenosis was present. If the latter condition, however, was absent or if hemorrhages existed, it was considered necessary also to occlude the pylorus. Among the various procedures for this purpose good results were obtained by application of strong catgut or silk thread about the pylorus or the portion of the stomach immediately in front, which had been previously crushed with the Doyen ecraseur down to the serosa, this being followed by a circular suture. The stenosis thus secured proved sufficiently tight to cause the greater part of the stomach contents to pass through the gastroenterostomy opening.

**Operative Treatment of Postpartum Hemorrhages.**—Dr. E. Kehrer (*Münch. med. Wochens.*, No. 16, 1912) in a case of severe atonic hemorrhage successfully employed the following procedure: The abdominal cavity was opened by a short longitudinal incision and the uterus drawn out. An assistant quickly constricting with the hands the isthmus region and the uterine and spermatic arteries, a double silk thread was inserted first on one side and then on the other from below upwards through the fascia, parietal peritoneum near the upper angle of the wound, and the parietal peritoneum and fascia in the lower portion of the abdominal incision. By tying this double thread the round ligaments, uterine vessels, lateral portion of the cervix, infundibulo-pelvic ligaments and spermatic vessels were secured, while all the lateral vessels of the internal genitals were ligated with a thick ligature. By means of a third and fourth suture at the lower and upper angles of the wound the anterior and posterior wall of the cervix was fixed to the peritoneum and fascia, except a small place which later was closed with catgut. The fundus was removed with Paquelin or knife, and the cutaneous incision closed by the application of Michel's clamps. The operation could be quickly done, only three minutes being consumed in applying the lateral ligatures and only ten in the entire procedure. During the abdominal incision the median basilic vein was exposed by an assistant, and immediately after ligation of the two lateral uterine ligaments an intravenous saline infusion of about 1,000 c.cm., with addition of 0.4 synthetic suprarenin, was given.

**Traumatic Lacerations of the Urethra.**—Dr. W. Merckens (*Deut. med. Wochens.*, No. 22, 1912) urges early operation in cases of urethral laceration as the result of violence to the perineum by blunt objects, even where the catheter can be introduced more or less easily. His objections to conservative treatment are: (1) that the injury is frequently much more severe than the first examination seems

to show; (2) the retention catheter does not prevent urethral inflammation and may even encourage its development; (3) in the moderately severe cases in which an expectant plan is pursued after introduction of the retention catheter, it is often necessary to operate early for inflammatory complications; (4) when done immediately after injury the operation is simpler as the proximal urethral stump can be more readily found than later when inflammatory changes have occurred.

**New Treatment for Varicose Ulcers.**—Dr. Stephan (*Med. Klinik*, No. 13, 1912) suggests the following method, which has given good results in his own practice and that of a number of others: The affected leg is elevated at an angle of about 45 degrees, the knee not being completely extended, with the upper portion of the body in the horizontal position. The ulcer is then cleansed and covered with clean gauze or linen, after which an Esmarch bandage is applied to the leg from the toes upward. This is quickly removed, the ulcer dressed and a bandage applied, over which an elastic stocking is drawn. Through the firm compression by means of the Esmarch the dilated capillaries and venous radicles, as well as the tissues and lymph channels, are freed of products of stasis and are enabled to take up fresh material from the arteries, in consequence of which the base and margins of the ulcer are better nourished and healing thus promoted. The presence of recent thrombosis or inflammatory products contraindicates this procedure.

**The Surgical Use of Silver Wire.**—Dr. O. von Frisch (*Arch. f. klin. Chir.*, Bd. 97, Hft. 4, 1912) considers silver the material of choice for buried wire sutures only in such regions of the body as are not subjected to strain from muscular contractions. For sutures of the patella aluminum wire is to be preferred. In a case observed by the author chronic ileus resulted from the tearing of silver wire sutures used to coaptate the muscles and fascia in an operation for radical cure of umbilical hernia performed eighteen years before. The fragments of the wire projecting into the peritoneal cavity produced irritation during movements of the abdomen and peristalsis of the small intestine, thus leading to formation of adhesions and later to ileus.

**Iodochromic Catgut.**—Dr. M. Cladius (*Deut. med. Wochens.*, No. 22, 1912) points out that for suturing muscles and fascia where iodine catgut is unsuitable owing to its rapid absorption, this objection may be obviated by subjecting it also to the influence of potassium bichromate. The procedure recommended is as follows: Raw catgut, without any previous preparation, is wound upon a glass spool and immersed in a watery solution of iodine, potassium iodide and potassium bichromate, 1 per cent. of each. After a week the suture is transferred to a watery solution of iodine and potassium iodide, one-half of one per cent. each, in which it is preserved ready for use. If a still less absorbable catgut is desired all that need be done is to leave it two weeks instead of one in the iodine and bichromate solution.

**Tincture of Iodin Disinfection.**—Dr. F. Bruning (*Zentbl. f. Chir.*, No. 19, 1912) made the curious observation that while in hundreds of cases in which he had used a 10 per cent. tincture of iodine infection never was observed, he witnessed such an occurrence within eight days after resorting to a 5 per cent. solution. As the resulting infection was of a severe character, he has since returned to the 10 per cent. tincture.

**Surgical Treatment of Ascites.**—Dr. J. Mohr (*Deut. Ztschr. f. Chir.*, Bd. 114, Hft. 1-3) has treated three cases of ascites, two due to malarial cirrhosis of the liver and one to syphilis, by means of nephropexy, according to the method of Omi. The chief point in this procedure is to suture a sufficiently long portion of omentum to the displaced kidney. Decapsulation is inadvisable. The left kidney is preferable, because its pedicle is longer than that of the right. In one of the three cases the results were very satisfactory.

**Perforation of the Uterus.**—Dr. J. Halban (*Ztbl. f. Gynäk.*, No. 16, 1912) has placed on record seven cases of perforation of the uterus requiring laparotomy. In six cases this accident occurred during pregnancy; in five it was due to the use of the curette or forceps. The author considers laparotomy always indicated in cases in which the perforation has been made by a forceps-like instrument, because it is impossible to tell what damage it may have done in the abdominal cavity, especially to the intestine. On the other hand, if the perforation has been produced by the curette a more conservative attitude may be adopted, although the surgeon should be ready to operate if inflammatory symptoms manifest themselves. Hysterectomy is indicated if the uterus has been markedly lacerated, especially if the cervix is involved and the parametrium infiltrated with blood, the intestine injured, or the wound directly infected by intestinal contents.

**Ice-tongs Extension in Simple Fracture of the Femur.**—Dr. J. Ransohoff (*Lanc.-Clin.*, Aug. 17, 1912) has resorted to this method in four recent cases in which the ordinary extension had failed. The points of the ice-tongs are driven tightly into the condyles above the level of the adductor tubercle. A light anesthesia suffices for this, and the author is sure that it could be done under local anesthesia. The limb is then placed on a double inclined plane and a weight extension of from twenty to thirty-five pounds applied over pulleys. The point of the tongs need not be driven in more than a fraction of an inch, because the traction of the weight will hold them and keep them from slipping. From time to time it is perfectly feasible by this method to make x-ray examinations. A single advantage of this method of treatment lies in the fact that from the third or fourth day after the ice-tongs have been applied, passive movements of the knee can be instituted and the time of restoration of func-

tion thereby very materially shortened. In only one of the cases was the weight extension by means of ice-tongs very painful for forty-eight hours. In one case, although the shortening was overcome, it was necessary to do a plating operation five weeks after the accident. This method of extension is not proposed for universal use, nor to supplant ordinary extension or bone plating, but as a means of obtaining satisfactory results in simple fractures of the femur by those who are not skilled in difficult technical operations.

**Conservative Treatment of Giant-Cell Sarcoma.**—In an important paper (*An. of Surg.*, Aug., 1912) Dr. J. C. Bloodgood states that up to present time there is no proof that giant-cell sarcoma ever metastasizes. Conservative treatment is justifiable. In some localizations of the tumor, curetting should be the operation of choice, but where resection in continuity does not interfere with function it should be given preference. Curetting is justifiable to preserve function, even when conditions suggest a great probability of recurrence; it has succeeded when the entire lower end of the femur was involved. Among 26 cases subjected to curetting there were 5 recurrences: one has remained well after a second curetting; three after resection, and one after amputation. The author is confident that the number of successful cases of curetting will depend chiefly on the number of attempts. Primary resection was resorted to in 22 cases: one recurred and was cured by amputation. After curetting or resection the wound should be disinfected with pure carbolic acid followed by alcohol or chloride of zinc solution. The operation should be always done, if possible, under an Es-march. Bone transplantation after curetting, which was first suggested and practised by Bloodgood, will, he thinks, grow in value as we attempt curetting more frequently. It is not necessary to transplant bone at the primary operation unless a single bone like the humerus or femur is divided in its continuity. In simple cases, however, the transplantation may be performed at the same time. It is simpler, when possible, to get the bone for filling the defect by splitting the bone which has been resected. This can be accomplished through a single wound. When this cannot be done on account of the large defect, the upper third of the fibula can be removed without injury to the function of the limb, or large pieces may be chiselled from the tibia without destroying the continuity of the bone. In every case in which the x-ray shows a medullary shadow the urine should be examined for Bence-Jones bodies; the latter indicate the presence of a multiple myeloma or metastatic cancer. A positive diagnosis of either a bone cyst or a giant-cell sarcoma cannot be based upon x-ray examination, but must be made at the exploratory incision. The less experienced surgeon should always aid himself with a frozen section. In the author's opinion the term "giant-cell sarcoma" should be replaced, at least temporarily, by the designation, "giant-cell tumor," as it gives a wrong impression of the malignancy of the lesion.

# Monthly Index of Surgery and Gynecology

- Abdominal Tumors of Tuberculous Origin (Med. Rec., Aug. 10, 1912). A. C. Wiener, Chicago.
- Abortive Treatment of Acute Gonorrhœal Epididymitis (Jour. Lanc., Aug. 1, 1912). O. Owre, Minneapolis.
- Acute and Fulminant Toxemia, the Treatment of (Surg., Gyn. and Obst., Aug., 1912). E. P. Davis, Phila.
- Acute Epididymitis Produced by Muscular Strain (Brit. Med. Jour., July 6, 1912). J. W. G. Grant, Cardiff.
- Acute Epiphysitis (Brit. Med. Jour., July 20, 1912). C. M. Kennedy, London.
- Acute Hematogenous Infection of One Kidney in a Person Apparently Well (An. of Surg., Aug., 1912). G. K. Dickinson, Jersey City.
- Acute Osteomyelitis of the Jaw (Jour. A. M. A., Aug. 10, 1912). W. W. Babcock, Phila.
- Acute Unilateral Infection of the Kidney (An. of Surg., Aug., 1912). F. W. Rinkenberger, Tacoma, Wash.
- Adherent Hernias of the Large Intestine (An. of Surg., Aug., 1912). J. L. Ransohoff, St. Louis.
- Anesthesia by the Intratracheal Insufflation of Ether (Brit. Med. Jour., July 20, 1912). R. E. Kelly, Liverpool.
- Aneurysmorrhaphy (Matas), Further Experience with. A Report of Eight Cases (Jour. A. M. A., July 27, 1912). J. H. Gibbon, Phila.
- Appendicitis in Childhood (Am. Jour. Dis. Childr., Aug., 1912). R. S. Fowler, Brooklyn, N. Y.
- Appendicitis in Private and Public Hospitals for the Insane (Brit. Med. Jour., July 20, 1912). J. F. Briscoe, Alton, Hants, Engl.
- Appendicular Dyspepsia of Insidious Onset with Little or No Focal Symptoms (Am. Jour. of Surg., Aug., 1912). H. Barclay, New York.
- Bismuth Paste, its Uses in Surgery (N. Y. S. Jour. Med., Aug., 1912). E. G. Beck, Chicago.
- Cancer, an Experimental Study of the Treatment of, with the Body Fluids (Jour. A. M. A., Aug. 17, 1912). E. J. Ill, W. D. Minningham, Newark, N. J.
- Cancer of the Rectum and Rectosigmoid, the Radical Operation for (An. of Surg., Aug., 1912). W. J. Mayo, Rochester, Minn.
- Cancer of the Stomach (Jour. Mo. S. M. A., Aug., 1912). J. F. Binnie, Kansas City.
- Cancer of the Tongue, the Operations for (Brit. Med. Jour., July 20, 1912). W. G. Spencer.
- Cancer of the Uterus, Primary and End Results of 51 Radical Abdominal Operations for (Surg., Gyn. and Obst., Aug., 1912). R. Peterson, Ann Arbor, Mich.
- Cancer, Uterine, the Prognosis in Radical Abdominal Operation for (Surg., Gyn. and Obst., Aug., 1912). F. J. Taussig, St. Louis.
- Carcinoma of the Cervix Uteri, the Radical Abdominal Operation for, with Report of 28 Cases (Surg., Gyn. and Obst., Aug., 1912). H. C. Taylor, New York.
- Celluloid Splints, the Use of, in the Treatment of Cases of Poliomyelitis (Lancet, July 13, 1912). F. E. Batten, London.
- Chronic Cystitis of the Trigone and Vesical Neck (Surg., Gyn. and Obst., Aug., 1912). E. Garceau, Boston.
- Chronic Infectious Diseases of the Lung, the Surgery of (Jour. A. M. A., July 27, 1912). S. Robinson, Boston.
- Chronic Joint Disease, the Pathology and Classification of (Jour. A. M. A., Aug. 17, 1912). L. W. Ely, Denver.
- Chronic Ulcer of the Stomach and Duodenum, Treatment of, by Gastrojejunostomy, with a Report of 73 Consecutive Cases Operated on More than Two Years ago (Lancet, July 13, 1912). J. Sherren, London.
- Chronic Unopened Empyema (Jour. A. M. A., July 27, 1912). E. M. von Eberts, Montreal.
- Cleft Palates: With Special Reference to the Closing of a Surgical Cleft by the Use of a Dental Appliance (Jour. A. M. A., Aug. 10, 1912). H. S. Haslett, Pittsburgh.
- Compound Fractures (Buf. Med. Jour., Aug., 1912). T. Wright, Buffalo.
- Constipation and Headache in Women; a Study in Etiology and Diagnosis (Jour. A. M. A., Aug. 3, 1912). C. A. L. Reed, Cincinnati.
- Direct Gastroduodenoscopy, the Value of, in Affections of the Stomach and Duodenum (An. of Surg., Aug., 1912). T. Rovsing, Copenhagen.
- Diverticula of the Gastrointestinal Tract: Their Surgical Importance (Jour. A. M. A., July 27, 1912). C. H. Mayo, Rochester, Minn.
- Duodenal Perforation, Five Cases of (Lancet, July 13, 1912). D'Arcy Power, London.
- Ectopic Gestation (Pa. Med. Jour., Aug., 1912). S. D. Molyneux, Sayre, Pa.
- Electrical Desiccation as an Adjuvant to Surgery, with Special Reference to the Treatment of Cancer (Surg., Gyn. and Obst., Aug., 1912). W. L. Clark, Phila.
- Extended Abdominal Operation for Carcinoma Uteri (Am. Jour. Obst., Aug., 1912). E. Wertheim, Vienna.
- Extension Apparatus, the Usefulness of, in the Treatment of Fractures of the Lower Extremity (Surg., Gyn. and Obst., Aug., 1912). W. Hessert, Chicago.
- Extrauterine Pregnancy, a Plea for the Early (Preperforative) Diagnosis of (Pa. Med. Jour., Aug., 1912). P. G. Skillern, Jr., Phila.
- Fistula in Ano, the Mackenzie Operation for (St. Paul Med. Jour., Aug., 1912). H. P. Ritchie, St. Paul.
- Flat-Foot (Jour. Ind. S. M. A., Aug. 15, 1912). B. P. Weaver, Ft. Wayne, Ind.
- Foramitti's "Tubulization" Method of Nerve Suture, with Report of a Case (Charl. Med. Jour., Aug., 1912). G. Torrance, Birmingham, Ala.
- Fractured Bones Treated by Protruding Wires and Nails, with Illustrative Cases (Indianap. Med. Jour., Aug., 1912). H. R. Allen, Indianapolis.
- Fractures and Dislocations, Operative Treatment of (Jour. A. M. A., Aug. 3, 1912). W. Darrach, New York.
- Fractures of Long Bones, Treatment of (Canad. M. A. Jour., Aug., 1912). R. J. Manion.
- Gastric and Duodenal Ulcer, Surgical Treatment of (Jour. Mo. S. M. A., Aug., 1912). W. Bartlett, St. Louis.
- Gastrocolopostomy, Its Pathologic Significance and Its Surgical Treatment (Jour. A. M. A., Aug. 3, 1912). T. Rovsing, Copenhagen, Denmark.
- Giant Cell Sarcoma, the Conservative Treatment of, with the Study of Bone Transplantation (An. of Surg., Aug., 1912). J. C. Bloodgood, Baltimore.
- Gynecologic Pelvic Drainage (Jour. A. M. A., July 27, 1912). J. W. Bovée, Washington, D. C.
- Harelip and Cleft Palate, Notes on Operations for (Va. Med. Semi-Mo., Aug. 23, 1912). J. S. Horsley, Richmond.
- Hemorrhoids, the Office Treatment of (Am. Jour. Surg., Aug., 1912). L. F. Watson, Oklahoma City.
- Hypertrophism: Its Treatment (Canad. Pract., Aug., 1912). W. J. Macdonald, St. Catharines, Can.
- Hypophysis Cerebri, Experimental Surgery of the (Calif. S. Jour. Med., Aug., 1912). H. E. Castle, A. L. Ryfkogel, San Francisco.
- Hypophysis, Surgery of the, with Special Reference to the Endonasal Method of Hirsch (Med. Rec., Aug. 17, 1912). I. W. Voorhees, New York.
- Ice Tongue Extension for Simple Fracture of the Femur (Lancet, Aug. 17, 1912). J. Ransohoff, Cincinnati.
- Improved Operation for Prolapsus Uteri, with Report and Results (Tex. S. Jour. Med., Aug., 1912). C. S. Venable, Antonio, Tex.
- Indications for and the Type of Operation to Select in the Toxemia of Pregnancy (Surg., Gyn. and Obst., Aug., 1912). J. O. Polak, Brooklyn, N. Y.
- Inguinal Hernia, Observations on (Va. Med. Semi-Mo., Aug. 9, 1912). L. Sexton, New Orleans.
- Injuries to the Spinal Cord (Atl. Jour.-Rec. Med., Aug., 1912). F. K. Boland, Atlanta.
- Internal Hemorrhoids, the Treatment of, by the Operation of Excision (Pa. Med. Jour., Aug., 1912). H. D. Beye, Phila.
- Intractable Constipation Treated by Operation (Lancet, July 20, 1912). P. Lockhart Mummery, London.
- Lane Bone Plates, Further Experimental Work Bearing on the Value of (Jour. A. M. A., Aug. 3, 1912). W. Bartlett, St. Louis.
- Malformations of the Kidney (Med. Herald, Aug., 1912). D. N. Eisendrath, Chicago.
- Neuralgia of the Testicle Caused by Adhesions (N. Y. Med. Jour., July 27, 1912). E. G. Ballenger, O. F. Elder, Atlanta.
- Phenolsulphonphthalein Test in Surgery of Genitourinary Tract (Am. Jour. Urol., Aug., 1912). L. E. Schmidt, H. L. Kretschmer, Chicago.
- Preoperative Treatment of Acute Abdominal Lesions (Am. Jour. Surg., Aug., 1912). W. F. Campbell, Brooklyn, N. Y.
- Preservation of Tissues and its Applications in Surgery (Jour. A. M. A., Aug. 17, 1912). A. Carrel, New York.
- Prolapse of the Uterus (Surg., Gyn. and Obst., Aug., 1912). J. M. Baldy, Phila.
- Prostatectomy, Stovaine Spinal Anesthesia as an Aid to (Am. Jour. Derm., Aug., 1912). F. Kidd, London.
- Pyelitis, Treatment of, with Report of Nine Cases (Am. Jour. Derm., Aug., 1912). P. T. Geyerman, Hot Springs, S. D.
- Picric Acid as a Skin Disinfectant (An. of Surg., Aug., 1912). O. W. H. Mitchell, Columbia, Mo.
- Pott's Disease of the Spine, an Operation for (Jour. A. M. A., Aug. 10, 1912). R. A. Hibbs, New York.
- Problems of Pelvic Surgery (Ill. Med. Jour., Aug., 1912). G. de Tarnowsky, Chicago.
- Relation of Pelvic Disease in Women to Mental Disturbances (N. Y. Med. Jour., Aug. 3, 1912). E. A. Schumann, Phila.
- Removal of an Intrathoracic Thyroid Tumor (Lancet, July 6, 1912). C. B. Lockwood, W. D. Harmer, London.
- Renal Tuberculosis (Med. Herald, Aug., 1912). L. W. Bremerman, Chicago.
- Renal Tuberculosis, Observations on the Diagnosis of, the Indications for Nephrectomy in its Treatment, and the Technic of Operation (An. of Surg., Aug., 1912). P. M. Pilcher, Brooklyn, N. Y.
- Repair of the Relaxed Vaginal Outlet (Va. Med. Semi-Mo., Aug. 9, 1912). S. M. Michaux, Richmond.
- Röntgen Rays, the Value of, in Diagnosis of Kidney Disease (Atl. Jour.-Rec. Med., Aug., 1912). J. S. Derr, Atlanta.
- Sarcoma of the Vagina (Jour. A. M. A., Aug. 17, 1912). P. B. Bland, Phila.
- Subperiosteal Hematoma (Brit. Med. Jour., July 13, 1912). P. P. Cole, London.
- Surgery of the Colon (Northw. Med., Aug., 1912). A. E. Rockey, Portland, Ore.
- Surgery of the Large Bowel, Personal Experience in (Lancet, July 27, 1912). F. T. Paul, Liverpool.
- Surgical Kidney (Med. Herald, Aug., 1912). A. C. Stokes, Omaha.
- Three-Step Operation in Tumors of the Sigmoid and Colon (Therap. Gaz., Aug. 15, 1912). J. P. Tuttle, New York.
- Thrombophlebitis of the Left Leg (Jour. A. M. A., Aug. 10, 1912). H. D. Kistler, Butte, Mont.
- Torsion of the Testicle, the Etiology of (Brit. Med. Jour., July 6, 1912). R. W. Murray.
- Traumatic Rupture of the Diaphragm with Other Injuries; Operation; Recovery (Bost. M. and S. Jour., Aug. 8, 1912). F. J. Cotton, Boston.
- Tumors of the Small Intestine (Jour. A. M. A., July 27, 1912). W. D. Haggard, Nashville.
- Undescended Testicle (Cleveland Med. Jour., Aug., 1912). V. C. Rowland, Cleveland.
- Use and Abuse of Ligamentum Teres Uteri (Interst. Med. Jour., Aug., 1912). F. W. Bailey, St. Louis.

# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

OCTOBER, 1912

No. 10

## Original Articles

### A NEW METHOD OF BONE TRANSPLANTATION FOR UNUNITED FRACTURE.

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Autoplastic bone transplantation for ununited fracture has received a remarkable impetus from the recent work of Murphy, who uses, preferably, a bone dowel taken from another bone and implanted in the medullary cavity across the defect.

The method herewith presented, and which, with a slight modification, was successfully used in the case cited below, seems worthy of consideration.

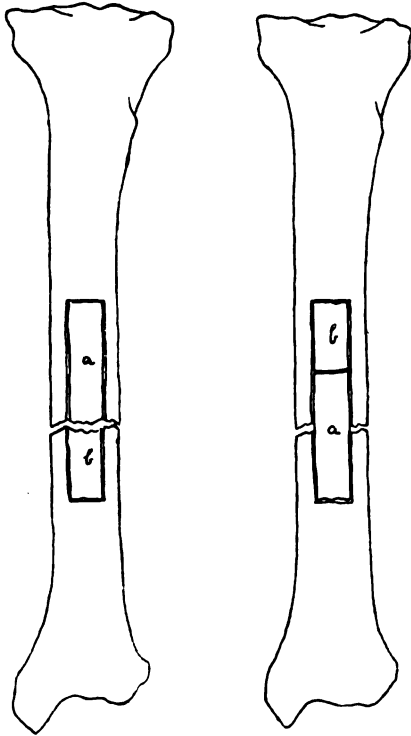


Fig. 1

Fig. 2

It is peculiarly adapted to those cases of non-union of the tibia where the position is good and the fibula united.

A rectangular piece is excised subperiosteally

from the surface of the bone, taking the whole thickness of its wall to the medullary cavity. In the adult tibia, for instance, this piece should be about two and one-half or three inches long and about five-eighths inch wide. It should be taken from the larger and better fragment after the periosteum has been lifted and the ends have been refreshed by cutting and chiseling out all the cartilaginous or fi-



Fig. 3

brous tissue at the site of non-union (*a* in Fig. 1).

A similar piece of exactly the same width, but of only half the length, should be taken from the other fragment (*b* in Fig. 1). The pieces should now be transposed, and implanted firmly into the groove from which they came (*a* and *b* in Fig. 2). The result is that a substantial bridge unites the two ununited fragments, and this bridge is closely

apposed in at least five-sixths of its periphery to the main fragments, corresponding portions of compact bone and medulla meeting each other.

The only defects remaining are fissures, and the entire mosaic is covered by the periosteum, which is sutured back into place. The resultant condition exactly simulates a favorable comminuted fracture without displacement. If the fibula is not united, firmness of the limb may be secured by plating the fibula or by fixing the bone bridge with bone pegs. It is essential, of course, that the gutter left by lifting the transplants should have parallel sides which present continuous straight lines throughout their length, and that the cross sections be at right angles with the sides.

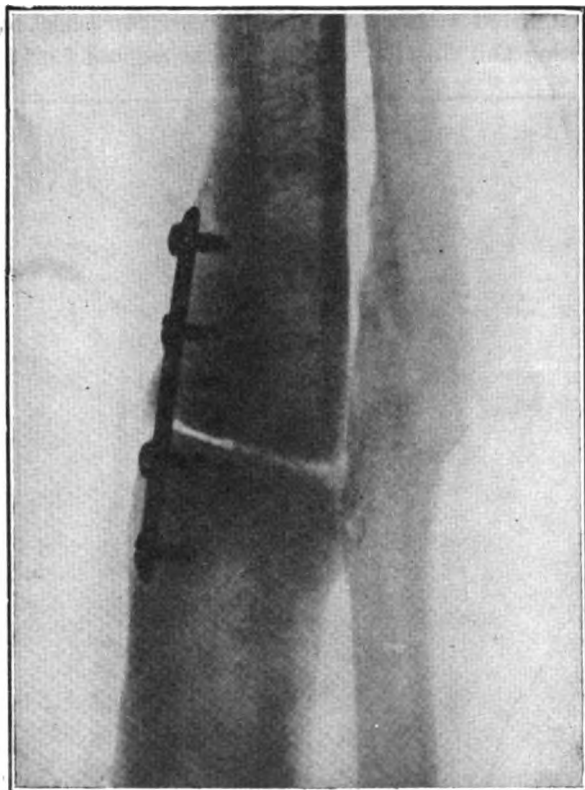


Fig. 4

The transplants are at present best cut out by grooving the outline with a chisel, deepening the side grooves into the medulla with a Doyen saw (an enlarged model of a Hey saw), and cutting across the ends with a chisel. A power saw would be desirable, but so far has proven unreliable.

The history of the patient in whose case this operation was performed is given below, together with x-ray plates.

**HISTORY.** W. R. W., instructor in an Agricultural college, a powerfully built man of thirty-four years, on June 20, 1908, sustained a closed frac-

ture of the middle third of both bones of the leg in a baseball game in a city in Central Pennsylvania. He was treated in hospital there for two weeks with a fracture box and for two weeks more with a plaster cast. At the end of this time the foot was in an unfavorable position and the ankle quite stiff. An

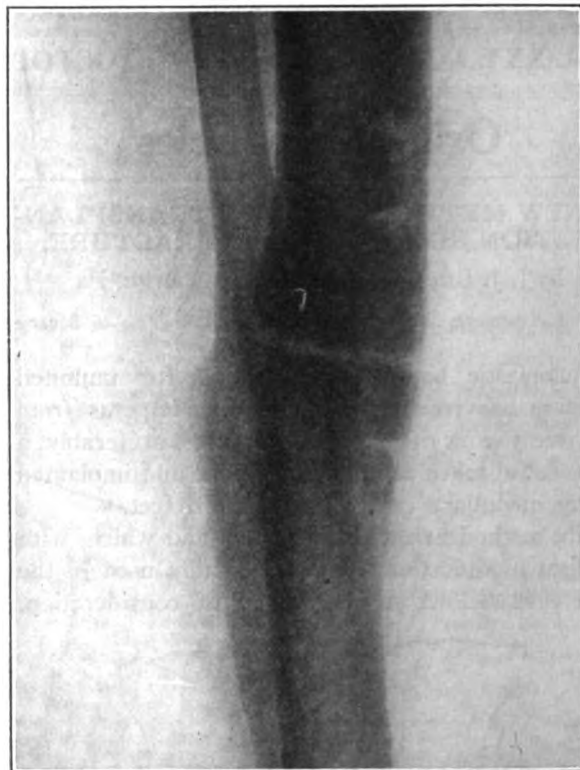


Fig. 5

effort to remedy these conditions resulted in breaking up such union as had occurred. A plaster cast was again applied, and in eight weeks union resulted with marked deformity.

The patient spent the next year in trying to use the limb and in consulting surgeons. Among others he had advice from distinguished and skillful surgeons in Philadelphia and New York, from whom he received conflicting opinions as to what should be done. He finally came to Pittsburgh where the following operations were performed by the writer:

Dec. 31, 1910. *Resection and Replacement of the Fragments.* Condition present: Angular union, with the lower fragment of the tibia entirely posterior to the upper and distortion of the lower fragment. (See Fig. 3.) Incision over both bones at the site of fracture. Sufficient bone was chiseled off each fragment to permit almost exact apposition, after which alignment of the leg was found to be satisfactory. Closure without any internal fixation apparatus, with limb held firmly with lateral plastic splints of plaster-of-Paris. Primary union



of the soft parts resulted; but *no bony union* of the tibia.

April 11, 1911. *Drilling of the Tibia.* Fibula united. Tibia slightly movable at the site of the fracture, with about one-fourth inch of posterior displacement of the lower fragment. A drill was passed through the skin, and the tibial fragments perforated in different directions. Still no bony union.

Sept. 2, 1911. *Resection and Plating of the Tibia with Section of the Fibula.* The fragments of the tibia were refreshed. The fibula was divided with the chisel. The tibial fragments were brought into exact apposition and held firmly in place with a four

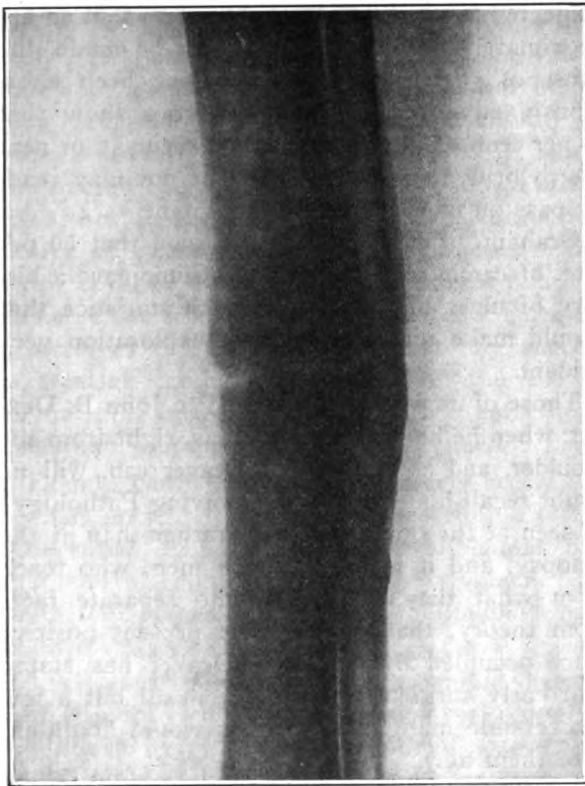


Fig. 6

hole Lane plate. Primary union of the soft parts resulted, but *no bony union of the tibia*, which was found movable at site of fracture at the end of two months (See Fig. 4).

June 20, 1912. *Removal of the Lane Plate and Transplantation of Bone by the Method Described at the Beginning of this Paper.* Solid Bony Union in Six Weeks. Incision seven inches long; plate exposed and removed. Three screws were found loose and one firm. The fragments were in perfect apposition, and between them a space of about one-eighth inch filled with soft tissue of a cartilaginous consistence. The periosteum was split and lifted from the inner surface of three inches of the upper

fragment and one and three-quarters inches of the lower. The soft tissue between the fragments was removed with a knife and slender chisel, so that both fragments presented bony surfaces with a space of about one-eighth inch between.

The surface of the proposed transplants was then outlined with a chisel, including two and three-quarters inches by five-eighths inch above and one and one-half inches by five-eighths inch below. The side grooves were deepened with a Doyen saw and the ends cut with a chisel. The writer is much indebted to his assistant, Dr. John W. Dixon, for efficient aid in sawing out these transplants—an exhausting labor. The lower fragment was so brittle that this transplant broke transversely at its middle while being pried from its bed. The upper fragment was turned, end for end, and wedged into the vacancy with taps of the mallet. One of the small fragments was fitted in above and one below. The main fragments were thus bridged with a solid piece of bone and no vacancy existed except slight crevices in the mosaic.

The periosteum was sewed together with catgut and the skin with horsehair. Union occurred *per primam*, and the tibia was solidly united in six or eight weeks. The x-ray plates shown in Figures 5 and 6 were made at the end of nine weeks.

## A SURGICAL PLEA FOR EARLY DIAGNOSIS.\*

By WALTER LATHROP, M.D.,

Surgeon-in-Chief, State Hospital, Hasleton, Pa.

In the brief period allotted to this paper, I wish to bring to your attention a few things that are of interest to the general practitioner as well as the surgeon, and while I can advance no new ideas or mention subjects not already familiar to this association, yet I believe the importance of early diagnosis cannot be overestimated, nor can it be too often studied and practiced.

Just now the stomach and its allied viscera occupy a prominent place in the medical world, and the interest shown by many writers and teachers has cleared up an atmosphere of doubt and added much to our knowledge of the upper abdomen.

Chronic indigestion should be looked upon in most instances as symptomatic of other trouble remote from the stomach, as exemplified in gall-bladder disease, chronic appendicitis, and, of course, in ulcer, gastric and duodenal, and early carcinoma.

\* Read at meeting of Railway Surgeons' Association of Pennsylvania Lines East of Pittsburgh, May 31 and June 1, 1912.



The history in these cases is fairly constant. Distress in the region of the stomach, pain varying in degree, in location and time of appearance, nausea, gaseous eructations, aversion to food of certain kinds, and loss of appetite—these are the symptoms noticed in most of the so-called cases of chronic dyspepsia. Recognizing these facts, it is often difficult to make a positive differential diagnosis.

If no history of radiating pains to the right costal or right scapular region, with distinct liver pain, can be elicited, it is not wise to positively diagnose gallstones. If there are no vague, radiating pains from the umbilicus to the lower right abdomen, we cannot say chronic appendicitis. If there is no history of pain occurring with regularity after eating, which is relieved by taking food or drink, we would not pronounce it a case of ulcer. But when we do get a definite history of such conditions, it should signify some serious derangement of this region, for which surgery offers a chance of relief and probable cure; decidedly so, when ordinary medical treatment has availed little or nothing. These gastric symptoms are too often considered lightly by the patient and physician, and passed over with symptomatic treatment until advanced disease makes known the trouble, often too late. We are all aware of carcinoma, following ulcer, but we should not wait for a palpable tumor, cachexia, and bloody vomit, before urging surgical treatment. We should not wait for the yellow flag of icterus, to tell us of involvement of the gallbladder, and common duct. Nor should we hesitate because the patient has not reached middle life; within the past month I operated on three patients for gallbladder trouble, one nineteen, the others twenty-two years of age, and confirmed the diagnosis in each case. These gastric disturbances, in conditions outside the stomach, are often reflex, and yet we must remember that the pyloric apparatus is influenced by the duodenum and by a considerable part of the intestinal tract and its derivatives, and affections of these are often manifested by some of the symptoms mentioned. I have seen many patients with indigestion improved and often cured by the removal of the appendix, and the fact that cases have not been relieved of distress in the right iliac region after appendectomy, only proves that the appendix alone was not the cause, but that the terminal four inches of the ileum were overlooked, and Lane's kink, or the confining bands of adventitious peritoneum, were not freed.

I have not gone into any details regarding the gallbladder or appendix, as my chief plea is for early diagnosis and operation in that most deadly affliction—cancer, and it is along this line that I ask your indulgence for a few minutes.

The wise teachings of such men as Mayo, Deaver, Rodman, Moynihan, Robson, and many others, has shown us that it is up to the medical man, to the general practitioner, to refer these suspicious cases to the surgeon earlier, and give the patient a chance for prolongation of life and often a cure. Rodman has well said that "When the time comes that patients with marked gastric symptoms, who have been treated medically a reasonable time without obtaining relief, are subjected to a prompt laparotomy, so that an approximately correct diagnosis can be made, the cause of gastric surgery will have been enormously advanced." When statistics show that 80 per cent. of ulcers and cancers occur at, or near the pylorus, it is evident that the one may readily pass on from benign to malignant.

Graham, of Rochester, has shown that 50 per cent. of carcinomas at the Mayo Clinic gave a history of ulcer first, and it is such statistics that should make the need of early exploration very evident.

Those of us who have listened to John B. Deaver, when he hands out his beliefs, right from the shoulder, and as no one but Deaver can, will no doubt recall his emphasizing "Living Pathology" as seen at the operating table rather than at the autopsy, and it is to just such men, who teach from what they see daily, who separate facts from theory, that we owe the present positive place occupied by surgery. Deaver has stated that early surgical interference in all but a few inaccessible malignant growths would doubtless cure them all.

It is unfortunate that the majority of cases of cancer of the stomach have been treated for nervous dyspepsia, indigestion, or acidity, and when anemia, cachexia, vomiting, or a tumor shows something different, it is too late for relief.

We well know that the early signs of gastric and biliary disease are very similar, yet if we have a case in which there is loss of appetite, aversion to meat, gastric distress, steady loss of weight, and anemia we should suspect carcinoma, and advise exploratory operation as soon as possible.

Another subject, and one of vast importance, is the early recognition of malignant disease of the uterus and cervix. My own experience in a

large number of operations has convinced me that these cases are entirely too often overlooked by the medical profession.

It is unfortunate that many women over forty are receiving local treatment for a cervical carcinoma, which could be cured by early recognition and operation.

Irregular bleeding, at or near the menopause, should always be viewed with suspicion, while a foul discharge at this period is a most important symptom, and not to be overlooked. I believe that the prompt repair of all cervical tears would tend to prevent many cases of malignancy, for it is well known that these surfaces are favorite grounds for the starting of cancer.

The female breast is another region where early diagnosis and radical treatment mean much for a cure. Any growth or tumor beginning near the so-called cancer age should be viewed as malignant and treated radically, unless the microscope or a frozen section shows otherwise; but those of us who have not the opportunity of getting prompt examinations microscopically had better err on the side of removal, rather than trust to the chance of a harmless growth. I believe absolutely that any success in treating carcinoma, whether of the breast, stomach, or intestines, depends upon early diagnosis and prompt surgical interference.

Donald Guthrie in a comparatively recent paper has presented a very clear description of the differential diagnosis between gallbladder disease and ulcer and cancer of the stomach. He gives four stages in which the gallbladder may be involved:

1. Cases of mild gastric disturbances, distress with gas, upward pressure, coming on soon after food or at irregular periods, sudden onset eased by belching or slight vomiting, and passing away almost unnoticed and without treatment.

2. Cases with more or less prolonged dull pain in the epigastrium, right arch, or whole liver area. This pain is increased by food, exertion and motion. Deep respiration gives pain, and when posterior it is often called pleurisy.

3. The typical gallstone attack, sudden severe epigastric pain, radiating to the right, and through to the back or scapular region, spasm of the diaphragm, nausea and vomiting, and return to perfect health. These sudden severe attacks with cessation are peculiar to gallstone disease when no complications are present, and are often called acute indigestion, gastritis or neuralgia of

the stomach. In this stage the diagnosis is most often made.

4. In this stage, we have chronic gallbladder disease with adhesions, contractions, perforations, duct obstruction, etc. Here chronic gastric disturbance predominates and the picture is closely related to chronic ulcer. The diagnosis depends upon the early history. Ulcer of the stomach has definite symptoms, and particularly when the pyloric end is involved or the duodenum. The chronicity and periodicity of this condition is not peculiar, neither the degree nor location of the pain, nor gas formation, nausea, vomiting or sour eructations. These symptoms are common to all forms of chronic dyspeptic types of gallbladder trouble, appendicitis and cancer.

The characteristic points are the time the symptoms appear, their regularity after meals, and the equally ready control by food, vomiting, irrigation, etc. "This regularity of symptoms, meal after meal, day after day, is hardly approached by any other organic or functional condition." Here again the early history should lead to a correct diagnosis.

In cancer of the stomach Graham, of Rochester, Minn., has classified the history in three groups:

- 1st. Those preceded by a clear and prolonged typical ulcer history.

- 2nd. Those in which years before the recent continuous attack a stomach disturbance had been complained of, but in which there had been a period of years of perfect freedom from symptoms.

- 3rd. Those having no record of a gastric disturbance until the development of malignant signs.

In the first group, which includes about 50 per cent. of the cases, it is impossible to tell just when the malignant change takes place, for often in the presence of anorexia, marked hemorrhage and cachexia, ulcer may be the only lesion found at operation. These late conditions should never be considered medical, and the patient should get relief from the hands of the surgeon.

In the second and third groups the diagnosis is usually made correctly, the patient showing cachexia, loss of strength, weakness, anorexia, pain, foul vomitus containing food and blood, and usually no HCl.

To summarize these conditions, for diagnosis, we may state that the health in gallbladder diseases does not suffer till complications arise.

In ulcer, the health varies with the periods of

attack. In cancer, we have depression of spirits, weakness, paleness, and cachexia, and the course is steadily downward.

The pain in gallbladder disease is sudden, severe, and transient. In ulcer, it is clear cut, regular in time, and eased by food, returning in a few hours. In cancer, it is steady, depressing, and increased by food. Vomiting in ulcer is regular with the pain, is sour and burning in character, and gives relief. In cancer, vomiting is delayed, is very foul and often contains blood, while relief is not given. Gas in gallbladder disease occurs only during an attack. In ulcer it is very troublesome. In cancer it is continuous, and increased by food.

Corrigan has well said: "Given a case in the cancer stage with definite stomach symptoms, whatever they may be, having the following qualities, constant in time, progressive in degree, and obstinate in treatment, a surgical diagnosis of cancer is warranted.

"Constant in time.—Ulcer is cyclical, cancer constant; periods of relief in ulcer, no relief in cancer, night or day; and when this transition has taken place cancer has substituted ulcer.

"Progressive in degree.—Ulcer is periodical and capricious; cancer progressive; and when this progression has been observed for two months, or three at the latest, the case should be regarded as cancer till the contrary is proven.

"Obstinate in treatment.—In ulcer fermentation with acidity is the capital symptom, but yields to treatment. In cancer putrefaction and its products predominate and are unyielding; old remedies fail, a significant point. Fermentation is ulcer; putrefaction is cancer." Early diagnosis and *early exploratory operation* means the success and possible cure of the case.

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It is my belief that every Colles's fracture should be reduced under some general anesthetic. We may say to the feeble and aged that little in the way of reducing deformity can be done without an anesthetic, and we should say to the strong and the vigorous that under an anesthetic we can correct the deformity far better and restore the hand to usefulness in much less time. In the muscular arm with impacted fragments more or less complete relaxation of the muscle is necessary to proper treatment. Complete ether anesthesia is desirable, but ethyl chloride will give us a fair opportunity to accomplish our purpose.—Dr. W. A. Rankin (*Long Isl. Med. Jour.*)

## REDUCTION OF CANCER MORTALITY.\*

By JONATHAN WAINWRIGHT, M.D., Scranton, Pa.

When an invitation came from Dr. Free to address your society I at once saw that it was too great an honor for me to decline. The question of a subject, however, has worried me a great deal because it did not seem quite proper for one railroad surgeon to accept an invitation to address a large assemblage of railroad surgeons such as this and choose a topic apparently entirely foreign to the purpose of your meeting. However, you must lay the blame for this on our good friend Dr. Free, chairman of the Program Committee.

Dr. Free has long been very much interested in the work of the Cancer Commission of the Medical Society of the State of Pennsylvania, and has asked me to speak to you on its behalf. I am further embarrassed as to what to say, because we feel that the message of our Commission is to the lay public and the general practitioner and not to the prominent surgeons in various communities as I know you gentlemen to be from the mere fact that you are connected with the great Pennsylvania Railroad. I do not, therefore, pretend to have anything new to tell you, but hope to show you that there is just as much need for a campaign against cancer as there is for one against tuberculosis, and I trust to actively interest you in that campaign.

Heretofore the honors in sanitary science and prevention of disease have nearly all fallen to medical men, but the campaign against cancer must be fought by surgeons. We all know very well that the great trouble with cancer is that we do not see our cases early enough. Thousands of patients die from it every year—not because of anything connected with the essential nature of the cancerous process, but solely because either through ignorance on the part of the patient or apathy on the part of the physician the patient has not sought surgical aid until the curable stage has passed. It is the same old cry of "we do not get our cases early enough." We have kept up this cry so long in the case of appendicitis that it is beginning to have a telling effect. The same is true in strangulated hernia and to a less extent in gallstones and other surgical diseases.

Recently the Cancer Commission of the Pennsylvania Medical Society collected statistics on four hundred cancer cases applying to the sur-

\* Read at meeting of Railway Surgeons' Association of Pennsylvania Lines East of Pittsburgh, May 31 and June 1, 1912.

geon for a radical cure. These have been tabulated in several ways, and the results of this tabulation must be somewhat startling even to experienced surgeons who knew that delay in cancer was a frequent evil, but who may not have realized before just how common it is in this country. For instance, take the question of operability at the time the patients come to the surgeon. We have divided our cancer cases into superficial and deep-seated ones. Among the superficial cancers only 68 per cent. were operable at the time they applied to the surgeon; of the deep-seated, only 48 per cent. There can be no question but that these figures are much above the actual condition, because the blanks from which we obtained these averages were filled out by surgeons from their case records, and busy surgeons are constantly seeing in their clinics and in consultation advanced cases of cancer which are so hopelessly inoperable that they at once pass them on to the family physician again without any special record. Also the term operable is unduly stretched by the surgeon himself, because if he decides to make an attempt he, of course, places his patient in the operable class, but a prompt recurrence will frequently show that the case was, practically speaking, inoperable after all. Therefore, I think that it is safe to say that even at the present time over one-half of the cancer cases that come to the surgeon for relief are in an inoperable condition.

Another very interesting fact that the Pennsylvania statistics show is that in 39 per cent. of the superficial cancers and in 46 per cent. of the deep-seated ones the patients gave a definite history of some form of chronic irritation or some of the so-called pre-cancerous conditions. In other words, about half of the persons who presented themselves to the surgeon suffering from malignant disease had had a previous simple condition which probably could have been cured so that cancer would not have developed at all. In the face of these figures it would hardly seem too much to say that if the public and the general medical profession had the proper attitude on these matters, not only would the mortality of cancer be diminished but even the morbidity would be reduced by almost 50 per cent.

The responsibility for delay lies, as we have said, in two quarters, namely, with the public and the general profession. We will take up the relation of the public to the matter first. We all have had men and women come to us in the late stages of malignant diseases and on questioning them we

find that they have been aware that something was wrong for a long time, but they will say that they did not know that the early symptoms had any serious significance and they have not applied to a surgeon until the onset of pain or until health and strength begin to fail. As Moynihan has said, these patients have ignored the signs and symptoms that indicate the necessity of surgical treatment and they have come to us only when they saw the signs of impending death. The Pennsylvania statistics show that in the superficial cancers the patients have delayed through this ignorance on an average of one year and six months; in the deep seated ones, one year and two months. That is, most of the cases that consult us have had the disease for over a year. This delay is responsible for the very great majority of deaths from cancer. Four-fifths of these growths occur in regions which are easily accessible to surgery, and in nearly all instances the cancerous condition makes itself evident while it is still in a local and permanently curable condition. The only solution of this difficulty, of course, is education of the general public.

The Pennsylvania Commission has been trying to educate the public since it was appointed three years ago. The assistance of the lay press has been obtained, and the Commission has written a number of newspaper articles describing the early signs and symptoms of cancer in various parts of the body in simple language. These articles have been published in various papers throughout the State and have reached a great many people. Furthermore, in a number of instances it has been possible to arrange for addresses before certain clubs and for certain public meetings. In these addresses and newspaper articles we have of course laid special emphasis on the importance of early symptoms and the necessity of the patient having an immediate investigation the moment they appear. Following the lead of Childe of England, we have tried to teach the people that some of these early signs are in reality danger signals and are just as much to be acted upon immediately for the safety of the sufferer as is a danger signal at sea or on the railroad. We have tried to teach women that any irregular vaginal bleeding is a danger signal that must be investigated at once. It may be a warning of the onset of a very serious condition and must be heeded at once. The warning may not be repeated until the disease has gone beyond any hope of cure. We have tried to teach women that any small lump in the breast is a danger signal and demands immediate attention. They must not wait to see if it will grow, or if it will pain them, or if it is going to

affect their general health. The danger signals to be taught in cancer of the lip, mouth, tongue, skin, alimentary canal, etc., are of course well known to this audience and need not be detailed.

In bringing these matters before the laity we have taken great pains to do it so that we will not cause any undue alarm or dread. Indeed we have tried to show that the real message in regard to cancer is decidedly one of hope, and that an individual who has an ordinary understanding of the warning symptoms has nothing to dread. The only person who should dread a cancer is he who through ignorance allows it to creep upon him unawares and get a fatal grip before he knows that there is any serious trouble at all. We have tried to impress the people with the fact, first, that cancer in its early stages is a purely local disease involving only a few cells; second, that it nearly always manifests its presence while it is still in this local stage; and, third, that in this stage it is permanently curable by efficient treatment in almost every instance. We have tried to teach them that delay is the thing to fear and not the cancer itself.

We have used one other means of getting at the public, and that is through trained nurses. Most nurses at the time they graduate do not know any more about cancer from our point of view than do shop girls. Yet very frequently a woman on account of what she thinks is modesty dreads to tell a physician of any unusual condition in the pelvis or breast, but will frequently mention her trouble to a nurse whom she may know or may meet casually, so that nurses, if they have the proper knowledge, can very frequently advise a woman as to what course it is necessary for her to pursue under such circumstances. In order to teach nurses we have several times arranged for addresses by physicians at meetings of the State Nurses' Society, and we have also tried to induce every training school in the State to have a lecture given every year on cancer from this standpoint.

We now come to the relation of the general medical profession to the cancer question. We believe that after all—at the present time at least—much the most important educational work is to be done with the medical profession itself. The figures already given show that there is a very disastrous delay on the part of the public, but an analysis of the Pennsylvania statistics in a different way reveals that the medical profession in general is almost as much responsible for delay in cancer cases as is the laity. For instance, our four hundred reports show that on an average the cancer patient has been in the hands of the family physician for one year before applying for surgical treatment; so that in a

very large proportion of cases the family physician is frequently directly responsible for the ultimate death of the patient. What is more significant still, our reports show that in breast cases the physician first consulted did not make any examination at all in 3 per cent., and in 13 per cent. of the cases there is a definite statement to the effect that he gave absolutely bad advice, that is, that he told the patient that it did not amount to anything or that it would be best to wait and see what developed, or he applied some ointment or other form of treatment for no other purpose apparently than that of keeping the patient in his own hands.

In some of the other regions of the body the malpractice on the part of the physicians was more apparent still. In the stomach no local examination was made in 9 per cent. of cases and some form of bad advice was given in 20 per cent.

In cancer of the uterus no local examination was made in 10 per cent. and bad advice given in 15 per cent.

In cancer of the ovary there was no local examination in 14 per cent. and improper advice in 14 per cent.

We all knew of these conditions in a general way, but it is hoped that the paragraphs above will impress us with the fact that there is need for an immediate and radical change of attitude right in our own ranks, and, as mentioned before, the excuse for reading this paper to this audience is a feeling that the change can be brought about only by those who are especially active in surgery in their particular neighborhoods. We all know very well the facts that should be impressed upon the general medical profession, but how best to do it is a more difficult problem. In Pennsylvania, as already stated, we have felt that our most important work lay with our own profession. We have naturally worked first through the medical societies. Every year at our State meeting the question of cancer is presented in one form or another, and we have tried to impress upon the State Society that we are pursuing an active campaign against cancer on much the same lines as the well-known campaign against tuberculosis. We also stimulate the interest of the county societies, and each year we endeavor to have them devote one or more meetings to the study of cancer, and particularly to its early diagnosis. In the case of the smaller counties we secure, if desired, a prominent surgeon from a large city to go to them and give a special address. Furthermore, when feasible, we try to have an abstract of the address published in the local pa-

pers so that the interest of the people as well as the physicians is aroused. Also, within the last three years, we have on three occasions distributed to every physician in the State various reprints and reports on the cancer question. When it is remembered that there are about twelve thousand physicians in Pennsylvania it will be seen that this of itself is considerable of an undertaking.

In conclusion I can only say that the Cancer Commission of the Pennsylvania Medical Society hopes that each of you will return to your homes an active worker in this campaign against cancer, that those of you from our State will redouble the active co-operation you have always given us, and that those from other States will inaugurate a campaign on such energetic lines that the Pennsylvania Commission will not be able to keep up with you at all.

## THE TREATMENT OF ANEURYSM—A REVIEW.

By FRANK K. GREEN, Ph. G., M.D., Louisville, Ky.

Under the present liberal definition and expanded interpretation, the term aneurysm (i. e., dilatation) is utilized to denote a pocket, sac, cavity, or tumor (communicating with an artery), containing coagulated or fluid blood, the result of laceration or rupture from traumatism, degeneration, disintegration or ulceration of an artery, the external envelope of which consists of one or more of the arterial coats (complete or incomplete) or of the surrounding integument. However, originally and literally, the word was most likely intended to signify only a circumscribed dilatation of an artery without rupture thereof. Therefore, in modern times, in the classification and description of the affection distinction has become necessary between spurious and true aneurysms, i. e., those in which there is rupture of one or more of the arterial coats, and those in which dilatation is unaccompanied by any solution of continuity of the arterial walls.

It is, of course, possible for aneurysm to involve any artery within the human economy, and numerous varieties have been encountered and minutely described by various anatomists and surgeons; but their enumeration herein with appropriate commentaries would only entail repetition of observed clinical facts without adding anything of especial importance or unusual interest. However, the interpolation of a few historical data appears pertinent and permissible.

Evidently aneurysm was recognized and more or less accurately understood by the ancients, since medical history shows that Antyllus during the third century B. C., having found medical management absolutely inadequate and unavailing, suggested the invocation of surgery in the treatment and recommended ligating the proximal and distal ends of the affected artery just outside the aneurysmal sac, with opening and evacuation of the coagulated (or fluid) contents.<sup>1</sup> So far as the writer can ascertain this constituted the first radical operative procedure suggested and practiced in the attempted cure of any variety of aneurysm. And notwithstanding the necessarily crude surgical appliances and technic of that remote period, it is not unlikely that operative intervention then was attended with practically similar degrees of success (or failure) as obtained nearly two thousand years later; indeed "the history of aneurysm and its treatment is one replete with dismal pictures of failure and disaster." It has always been regarded as an exceedingly serious affection, and in the earlier ages it is said that the victims thereof were almost invariably left to their fate, mechanical or other intervention being considered unjustifiable.

Little substantial progress toward the acme of successful management of aneurysm by surgical intervention appears to have been accomplished from the days of Antyllus until the eighteenth century when Anel proposed, as an improvement upon the older procedure devised by Antyllus, that the ligature be applied to the artery only on the proximal side close to the tumor; and Hunter later suggested as a more appropriate and effectual plan proximal ligation some distance from the aneurysmal sac. A few years thereafter Brasdor advised ligating the affected artery on the distal side close to the sac, and Wardrop (1825) advocated distal ligation of only a branch of the artery involved in the aneurysm. Other presumed improvements and modifications of the original operative steps advocated by Antyllus were suggested by Purmann, Phylagrus, Mikulicz, and many others of the older surgeons.

The femoral artery was successfully ligated by Smith, of Baltimore, Maryland, in 1833, for the cure of a left popliteal aneurysm, and an abstract of his report is interpolated to illustrate the methods employed at that time. A male of thirty, habits intemperate, constitution naturally good but impaired by liquor and recently by the "secondary symptoms of venereal," had been aware of the existence of the disease (popliteal aneurysmal tu-

<sup>1</sup> It has been claimed by some writers that the so-called Antyllus operation dates from the fourth century A. D., but according to authoritative information compiled during 1911 it would appear that the third century B. C. is correct.

mor) for nearly six months. It had acquired the size of a small orange, pulsated violently, and was productive of extreme lameness and severe pain, especially in the leg below the knee. There also existed an "incipient dilatation of the artery in the right ham." Deeming it imprudent to operate without resorting to preparatory measures, it was resolved to take blood from his arm, to stop his grog, to put him at rest, and confine him to a low and simple diet for a week. While these measures were being employed the patient was visited by a Thompsonian quack, who quickly discovered that the disease was a very trivial affair, pronouncing it to be a swelling of a tendon, and promising to effect its removal in a few days by frictions with some vegetable substance! This method was so much more agreeable than surgery that the quack was employed and continued application of his remedies for eight or ten days. For some mysterious reason, however, his stimulating frictions were not attended with precisely the effects expected, for instead of disappearing the tumor increased, and, the patient losing confidence, returned and manifested a willingness to submit to anything. Low diet, aperients, etc., were again directed, blood letting was again practiced, and after a few days ligation of the femoral artery was accomplished, though with some embarrassment in consequence of the struggles and outcries of the patient, whose fortitude was not the most commendable! A single ligature of silk was employed. Perfect quietude and a meagre diet were enjoined, and blood was again taken from the arm!

Everything went on well for eleven days, the wound healing with the exception of the canal occupied by the ligature. No pulsation could be discovered in the tumor after the operation; the temperature of the limb soon became natural; all pain ceased and the patient felt himself so completely relieved that he became impatient of confinement. He was made fully acquainted with the danger which would attend any muscular exertion before separation of the ligature, being visited and thus cautioned daily. On the twelfth day, however, slight hemorrhage took place around the ligature. It was learned that the patient had been walking about the house during part of the day, and was in the act of sneezing (from taking a pinch of snuff) when the gush of blood occurred. He was also guilty of another exceedingly imprudent act which shall here be nameless; suffice it to say, however, that "the patient had a comely wife and that there was but one bed in the house!" On reaching him it was found hemorrhage had ceased, but there ex-

isted a small tumor at the point where the ligature was applied. There was no pulsation nor pain in the part, and under these circumstances it was thought no further bleeding would occur by use of the compress. Accordingly, after blood was freely taken from his arm, a compress was applied. On the evening of the same day hemorrhage recurred, the tumor had enlarged, was painful, and pulsated. It was determined to delay until morning, and should hemorrhage be repeated, to ligate the femoral above the profunda. This necessity occurred, and the operation was accordingly performed below Poupart's ligament, both ends of the ligature being cut close to the knot (as advised by Mr. Lawrence). The tumor at the site of the first ligature had acquired considerable size, and after application of the second ligature it was freely opened and emptied of a mass of coagulated blood. Some of this fluid had insinuated itself along the sheath of the artery toward the groin, and had induced irritation in the parts around the vessel to which it had been necessary to apply the ligature. The coats of the artery were also evidently rigid from chronic disease. All pulsation immediately ceased in the traumatic aneurysm, as did also the pain in a few hours, the limb quickly resumed its natural temperature, the collateral circulation seeming to be but little embarrassed. Everything appeared again to be going on exceedingly well, except that the wound did not heal by first intention, as in the former case. The pulse rising, blood was again taken from the arm!

On the eighth day the surgeon was summoned in haste, being informed that the patient was again bleeding copiously. The family physician having already arrived was making compression over the wound and hemorrhage had ceased. The man was literally weltering in blood, the bed was saturated therewith, there also being a pool of it upon the floor. His pulse was scarcely to be felt, his countenance was cadaverous, he was restless in the extreme, the limb exceedingly painful as low as the knee, being destitute of all sensibility and vital warmth below it. The idea occurred to the surgeon of securing the external iliac, but on reflection this procedure seemed unwise, as separation of the ligature would be productive of the same consequences as before, and in that case it would have been impossible to use the compress with the same prospect of success as on the femoral artery. Therefore a small piece of compressed sponge was placed within the wound directly upon the affected vessel, over this a larger portion, and so on, covering the whole with a broad compress in the groin. This was bound firmly down with the spica bandage. When



such a bandage is applied, if the patient extends his limb, compression in the groin is increased; therefore it was desired that if the patient felt any increased pulsation in the wound or any flow of blood that he make an effort to extend the limb. Constitutional treatment was also directed.

"I scarcely expected to see our patient alive the next morning, but, to my great surprise, I found him comfortable. The early part of the night had been passed in a restless manner, but toward morning he had slept quietly. The temperature of the limb was returning. From this time our patient went on extremely well, no flow of blood again recurring. The compress was continued for two weeks longer, when it was removed and the wound soon cicatrized." He was subsequently put upon the use of sarsaparilla and the bichloride of mercury for the cure of the supposed "sequelæ of venereal." The aneurysm in the left ham totally disappeared, and that in the right diminished. The patient returned to his labor enjoying health and strength. "I committed an error in not depleting this man more freely after both the first and second operations, as was made manifest by the effects of the hemorrhage on the eighth day after the second operation."<sup>2</sup>

Advances of much great importance in the treatment of aneurysm were presumed to have been accomplished when Moore (1864) recommended surgical introduction of thread, hair, or wire into the sac to stimulate coagulation of its contents, and later when Corradi added electricity to the procedure originated by Moore.<sup>3</sup> Various substances have from time to time been utilized for introduction with the aneurysmal sac, e. g., horsehair, catgut, needles, fine wire of steel, gold, silver, etc. Subcutaneous injections of gelatine in two or three per cent. solution, according to the so-called Lancereaux-Paulesco method, have been recommended and practiced at various times, likewise the application of bandages and compresses has had ardent advocates.

Inasmuch as the plans hitherto devised, such as galvano-puncture, insertion of wire, catgut, etc., had proven inefficient in the treatment of aneurysm, since they produced only red thrombi which could be absorbed or washed away, Macewen (1890) de-

vised a new method the object of which was to induce formation within the sac of a white, hard thrombus, i. e., by introducing a needle and irritating therewith the internal surface of the sac, thus conducing to the proliferation of leucocytes. According to the author the instrument employed is a pin of sufficient length to completely transfix the aneurysm and to permit of manipulation within it. Its caliber ought to be as fine as possible, the strength being only sufficient to penetrate the coat of the aneurysm and the intervening tissues. This cylindrical pin tapers to a point, like an ordinary sewing needle, and has on its opposite extremity a somewhat rounded head. As the coats of aneurysmal sacs vary in thickness, these pins must be made of various calibers, as those which may pass readily through one sac may not pass through others with thicker walls. They ought also to be finely polished, not only to facilitate their introduction, but to help render them aseptic.

Before performing the operation the skin over the aneurysm should be carefully cleansed and rendered aseptic. The aseptic pin is then made to penetrate the sac and pass through its cavity until it comes in contact with the opposite side. It ought to touch and no more. Then one of two methods may be employed: either to move the pin over the surface of the inner wall so as to irritate it, or to allow the impulse of the blood current playing on the very thin pin to effect the same object. If the wall penetrated by the pin on introduction be dense, the former method will be preferable, as the force of the blood current produces such a feeble action on the thin pin as to be insufficient to move it to and fro while it is firmly grasped by the dense wall. After acting thus for ten minutes at one part, the point of the pin, without being removed from the sac, is shifted to another spot, and so on until the greater portion of the internal surface opposite the point of entrance has been touched; this ought to be done in a methodical manner. A single insertion of the pin through the aneurysmal sac into its interior may be sufficient to enable the point of the instrument to come into contact with the greater part of its internal surface, but in some cases puncture from various sides of the external wall may be necessary, so as to reach portions of the tumor which cannot be attacked from the first puncture. While the pin is in the aneurysm it is surrounded by a piece of aseptic gauze or gauze moistened with an antiseptic solution. After it is withdrawn from the sac, the part should be covered with a moist antiseptic dressing (preferably one wet with a watery solution of carbolic acid), which should be kept on

<sup>2</sup> This report is duplicated many times in older medical literature, the prominent features being starving, purging and bleeding! To those who are unfamiliar with ancient history and the medical and surgical practices then in vogue, the treatment outlined may seem strange and unbelievable. Twentieth century perfection of surgical technic, anesthesia, asepsis, etc., were then unknown. It is almost beyond comprehension how human beings endured the punishment the treatment entailed.

<sup>3</sup> Moore's procedure is denominated filipuncture, and when the positive pole of an electric battery is connected with the wire which has been introduced within the sac, with the object of hastening the formation of fibrin, the operation is then called filigalvanopuncture, or as is more commonly used, "the Moore-Corradi method of treating aneurysm."

for several days. The period a pin may remain in an aneurysmal sac without doing damage is perhaps dependent upon the individual and the state of the aneurysm, but it should never exceed forty-eight hours. It is questionable whether all the necessary advantages derivable from irritation of the wall of the aneurysm could not be obtained within a few hours.

Even during the remote period heretofore mentioned, the medical treatment of aneurysm was not neglected. Numerous drugs have been recommended at different times for internal administration, e. g., acetate of lead, ergot, iodide of potassium, mercury, calcium chloride, gelatine, digitalis, etc. A method said to have been originated by Tufnell was to treat aneurysm by complete rest and reduction of the quantity of food and drink. In lecturing on aneurysm Watson (1836) claimed the object should be not to interfere with natural attempts toward repair, but to assist and promote them. He referred to the method of Valsalva and Albertini, which was to repeatedly bleed the patient, keeping him upon a diet barely sufficient to prevent his perishing of inanition, the object being to facilitate coagulation of the blood by diminishing its force and velocity, in the hope that such a solid barrier might be organized as would furnish a new wall to the dilapidated artery. When this object had had the best chance of being accomplished, i. e., when the patient had been so reduced as to be scarcely able from weakness to raise his hand from the bed (to which he was strictly confined), then Valsalva gradually increased the nourishment until necessary strength was restored. Watson agreed that this practice had doubtless been carried to a hurtful extent, e. g., that Copeland had seen instances in which aneurysmal tumors had existed for some time without any increase so long as the patient avoided any marked vascular excitement and continued his customary diet, but when repeated depletions and vegetable diet were adopted, great augmentation of the tumor and fatal results soon followed. It seems reasonable that the starving system and the frequent abstraction of blood would diminish the fibrin in that fluid, rendering it more watery and less disposed to coagulate, and that reaction (violent cardiac palpitation) was apt to follow repeated losses of blood; moreover, this forcible action of the heart must tend rather to sweep away the existing coagula than to cause an additional deposit. A more reasonable and hopeful plan of management, therefore, would be to keep the action of the heart gentle and moderate, and the motion of the blood as slow and languid as possible, without impoverishing that vital fluid; to husband

the materials of repair and promote their deposition where wanted. A nutritious but unstimulating diet, perfect repose of mind and body, due regulation of the natural functions, with the abstraction of so much blood only as may be necessary to alleviate pain, or to subdue excessive arterial action or unload vessels manifestly oppressed by their contents—these, says Watson, constitute the most rational means of furthering the endeavors of nature toward a cure. However, few cures can be hoped for in any way, yet life may be prolonged and the extension of existence for two months, a month, a week or a day may sometimes be an acquisition of the greatest moment. There is little to be said concerning particular drugs in the treatment of aneurysm. Digitalis may perhaps be sometimes of use, and the acetate of lead is well spoken of by those who have tried it.

Although, as already mentioned herein, numerous drugs have on theoretical grounds been recommended for internal administration in the treatment of aneurysm, with the evident idea of decreasing arterial pressure and promoting the deposition of fibrin within the sac, the writer wishes to emphatically deny that any material benefit has ever accrued in so far as the aneurysm per se was concerned which could be reasonably attributed thereto, the statements of others to the contrary notwithstanding; moreover, the declaration seems warranted by the facts that there has never been and never will be devised a satisfactory drug treatment of aneurysm. However, it is admitted without disputation that in certain instances the life of the patient may be markedly and comfortably prolonged by adequate rest, the avoidance of excitement and muscular exertion, together with appropriate hygienic and dietetic management.

The latest and probably the most rational and effectual surgical procedure designed for the radical cure of aneurysms in certain situations, originated and first successfully performed by Matas in 1888, is designated as arteriorrhaphy, or endoaneurysmorrhaphy, more commonly known as "The Matas operation."<sup>4</sup> The following information in relation thereto is abstracted from one of Matas' papers published in 1906. The more intricate minutiae concerning the character of aneurysms to which this method of treatment is applicable, the technic, etc., are too familiar to require repetition herein.

<sup>4</sup> While Matas published the result of his first successful operation in October, 1888, little attention was attracted to the subject until appearance of his subsequent contributions thereto. So far as the writer is aware or can ascertain from study of the literature, the term endoaneurysmorrhaphy was first utilized to represent the Matas procedure in 1908. However, the terms arteriorrhaphy and arterioplasty had been previously employed.

Endoaneurysmorrhaphy, or the radical operation for the cure of aneurysm by the intrasaccular suture of the aneurysmal orifices, essentially consists of two fundamental procedures: (1) the obliteration by suture of the vascular orifices which open into the aneurysmal sac; (2) the obliteration of the sac by suture which brings its inner surfaces in apposition, or by methods of obliteration which leave the sac undisturbed and tend to secure primary healing by plastic union. In obliterating the vascular orifices that supply the sac, the parent trunk which nourishes the aneurysm may be preserved or obliterated at the point of attachment according to the type of sac encountered. Hence the subdivision of endoaneurysmorrhaphy into three varieties.

(1) Obliterative endoaneurysmorrhaphy (the fundamental procedure) essentially consists in opening the sac freely without disturbing it from its surroundings and closing all visible arterial orifices within it by suture, thus securing complete hemostasis and permanently stopping all further access of blood into the aneurysmal cavity. The sac is obliterated by approximating its walls with buried sutures, and closing the wound with or without drainage; or, in rigid cavities, by simply infolding the overlying skin flaps and lining the cavity with them (or by one of the several procedures or variations suggested).

The indications for the application of this obliterative suture, or fundamental procedure, are: All aneurysms in which the sac is of the fusiform type, in which there are two or more orifices of supply, and in which the parent artery is entirely lost at the seat of the aneurysm by blending with the aneurysmal sac throughout its circumference. In these cases no attempt is made to restore the continuity of the parent artery; the blood stream is interrupted in that part of the vessel which directly opens into the sac and the arterial orifices are simply closed by suture, thus shutting off the sac from all sources of blood supply.

(2) Restorative endoaneurysmorrhaphy. This variation in the procedure is solely applicable to aneurysms of the sacciform type, in which the parent trunk retains its continuity and normal outline and the aneurysm is a sac simply grafted on the vessel. By opening the sac freely and washing out the clot, the aperture leading to the artery is exposed inside of the aneurysm and is readily closed by a continued suture which penetrates through all the coats of the sac at the margin of the orifice of communication. By this procedure the blood supply of the sac is permanently arrested, the lumen of

the parent artery remains patulous, and the arterial stream supplying the limb or dependent territory is immediately restored through its normal channel. The sac is then obliterated by bringing its endothelial surfaces together with buried sutures, and the surface wound is closed in the usual manner.

(3) Reconstructive endoaneurysmorrhaphy (arterioplasty) is applicable solely to fusiform aneurysms in which the coats of the sac are firm, elastic and resistant and the two openings leading to the main artery lie on the same level, in close proximity, and are situated at the bottom of a superficial or readily accessible sac.

In aneurysms of this type, especially those of traumatic origin, the continuity of the parent artery may be restored by making a new channel out of the sac walls which can be brought together by suture over a guide (catheter or drainage tube) inserted into the proximal and distal openings of the aneurysm. Before tying the last sutures, the guide is removed and a channel is left behind corresponding to the outline of the original artery. The sac is then obliterated by approximating its surfaces with buried catgut suture, as previously applied in the first and second procedures.

As an illustration of the unsatisfactory state of scientific knowledge concerning the treatment of any particular medical or surgical ill to which the *genus homo* is prone, it is only necessary to direct attention to the number and variety of remedial agents or methods of management recommended therefor, and aneurysm is not entitled to unqualified exception to the rule, as is amply demonstrated by the foregoing review. Inasmuch as there is no medical treatment of aneurysm, it naturally follows that if there be any possibility of benefiting the unfortunate patient, except to induce comfort and prolong life as before mentioned, the hope of such benefit accruing must necessarily depend upon the intelligent and scientific application of modern surgical principles. In making this statement, however, the writer is not unmindful of the fact that an aneurysm may develop in an anatomically inaccessible region and thus preclude the possibility of radical surgical intervention; likewise, that under certain circumstances small sacs may be obliterated by the intelligent application of purely mechanical measures.

While symptomatic cures (so-called) have not infrequently been recorded in the literature following the application of each plan of management outlined in this article, the writer has no hesitancy in expressing serious doubt whether permanent benefit has in any instance accrued except from the rational invocation of surgery; i. e., in his opinion the

beneficial effects reported from other methods of procedure were only temporary in character.

In this connection the pertinent fact must not be permitted to pass unobserved that both the immediate and remote dangers to life incident to some of the presumably minor methods of procedure outlined are infinitely greater than those attending radical surgical treatment, the reasons for which are too obvious to require further elaboration herein.

After according due consideration to all the methods of treatment hitherto devised looking toward the radical cure of aneurysm, provided it be so situated as to be accessible and therefore amenable to surgery, the plan originated by Matas appears the most rational, feasible and satisfactory, and—of greater importance — the least dangerous to life, while at the same time the most successful from the viewpoint of both the patient and the surgeon.

#### REFERENCES.

- Bullock: *American Medicine*, vol. vi, August 29, 1903, p. 364.  
Lippincott's *New Medical Dictionary*, Second Edition, 1911.  
Macewen: *Editorial, Medical Record*, vol. 38, No. 24, 1890, p. 668.  
Matas: *Journal of the A. M. A.*, vol. xlvii, No. 13, 1906, p. 990; also *Medical News*, October 27, 1888; *Annals of Surgery*, February, 1903; *Transactions American Surgical Association*, 1905.  
Rankin: *Lancet*, June 27, 1903; quoted by *Medicine*, vol. ix, No. 9, 1903, p. 706.  
Smith: *Baltimore Medical and Surgical Journal and Review*, No. 3, April, 1834, p. 61.  
Tinker, etc.: *Editorial Comment, American Medicine*, vol. vi, No. 24, 1903, p. 961.  
Watson: *Practice of Physic*, Second Edition, 1845.  
Wilson: *International Clinics*, Series 20, vol. iii, p. 169.

**Flat Foot.**—Dr. B. P. Weaver (*Jour. Ind. S. M. A.*, Aug. 15, 1912) summarizes his view in the following conclusions: 1. Weak-foot is a condition far commoner than the average practitioner may believe, and must be considered seriously before a diagnosis of rheumatism is made. 2. All weak or pronated feet do not have depressed arches by any means, but represent rather a type in which there is a relative disproportion between weight-bearing and functional support. 3. Much can be done by the family physician to relieve and overcome this condition when once properly diagnosed, and in such treatment the irrational application of a rigid plate or brace as a life term sentence, must ultimately give way to a more thorough-going course of training in the exercise of proper functional use. 4. Proper shoeing at all times and temporary support, such as by adhesive strapping, in some cases, are potent factors in the treatment of all cases of weak-foot which do not demand operative correction.

#### BASIC TREATMENT OF FRACTURES.

By. H. R. ALLEN, M.D., Indianapolis, Ind.

Years ago when the world was known to be flat instead of round, the ancient bone surgeons selected certain mechanical agencies for the non-operative treatment of fractures. But now that the world is known to be round instead of flat it is time to assure ourselves that this primitive selection is right or wrong.

The writer is not drawn into the argument in any way. His duties are merely to submit the case to the department of dynamics and physics.

In the primitive selection we find involved the mechanical principles associated with splints, levers, bandages and the force of gravity—these four and no more. They appear in various disguises that render them almost beyond recognition at times; however, the generic qualities of each can be brought to the surface and properly classified. Splints and levers are frequently found to coexist in one piece of material, but it does not matter whether they exist together or as individual units since in either case they depend upon bandages to hold them in place and also to render them effective.<sup>1</sup>

The bandage, therefore, is the key to the conventional application of splints and levers, since it governs them. It is important then to investigate the mechanical principles involved in bandages.

Bandages of any material<sup>2</sup> can be wound around and around a broken member so loosely that no mechanical purpose at all is served. In this indolent capacity the bandage is not and cannot be regarded as a constrictor, unless by chance internal swelling about the fracture zone converts its functions into constriction of more or less violence. When a bandage is on duty, however, it is by every possible analysis a constrictor primarily, and its other mechanical qualities are of little or no importance in fracture work. It would seem, therefore, that the key or governor of splints and levers is essentially a constrictor, and since constriction is in no sense necessary to successful treatment it might be well to select some mechanical agency that is more appropriate and at the same time devoid of injurious

<sup>1</sup> If two longitudinal tangent splints or levers that are parallel and wide enough to project beyond the vertical tangents are placed on opposite sides of a fractured member, then a bandage passed around the two projecting splints will not constrict but will act as the jaws of a vise, rendering constant the distance, but the superficial and deep fasciae act as true constrictors and consequently the efficacy of this treatment is not commendable.

<sup>2</sup> Bandages are ordinarily classed as elastic and inelastic. Elastic bandages are constrictors at all times, varying in degree according to tension. Inelastic bandages may be constrictors from the start or become so from internal swelling of the part they surround, or they may be applied so loosely that they serve no mechanical purpose other than that of a covering or a "roof" for the part being treated. A plaster-of-Paris dressing is merely a splint or lever combined with a bandage in one piece. Further comment would confer undue importance upon it.

possibilities. This is especially true because constriction is very apt to do more harm than good.

In considering the use of gravity it should be borne in mind that able and learned men in physical laboratories have studied this force and have found it to be both constant and unalterable.<sup>8</sup> It is to surgery alone that it owes the qualities of self-generation and self-elimination. Further than this, surgery has endowed the force of gravity with a supreme knowledge of knowing when to and when not to exist, and how to modify its degrees of activity in order to serve the purpose of its chief flatterer.

For example, in treating a fractured thigh we frequently find a weight and pulley opposed by the irregular and totally inconstant force of muscle contractions. The purpose is to control muscle spasms and secure muscle relaxation in the hope of having the broken ends of bone assume their normal position. In other words, the constant force of gravity when opposed by the irregular and inconstant force of muscle is supposed to result in a balance of power which will secure constant position of bone fragments. Now in order to secure this ideal state of affairs the force of gravity must know when and how much to pull, and when to cease pulling, because muscle spasms and muscle contractions are followed by muscle relaxations.

If the force of gravity is constant it will continue its activity upon relaxed muscle tissue, whether it is torn and lacerated about the zone of fracture or not. If torn, it will pull the wounded muscle open and produce violent stimulation and thereby cause new muscular contractions, or else it will hold the broken bones apart in elongated position, an attribute which is not assigned to the force of gravity in any textbook on earth.

A physicist would employ fixation forces for fixation purposes. He would not use a constant force to combat an irregular opponent in the hope of maintaining constant relation of position between movable masses, nor would he assign special characteristics to forces unless he found them to exist.

The inherent qualities of splints, levers, bandages and gravity are as sound to-day as they were thousands of years ago. They are mathematically perfect in the realm of dynamics. So are a lot of other mechanical agencies that have not been selected by bone surgery. Where surgery exposes an awful blow hole in this age of reason and rational mechanics is in the selection of, and tenacious adherence to a lot of inappropriate ways and means in every department of mechanical therapy.

It is really incumbent upon surgery to do a little housecleaning and make a few substitutions, and acquire a few new methods that will in no way intrude upon conventionality nor offend the established code of mechanical principles.

Knowledge of faulty selection of mechanical principles is not new to the writer. On the contrary, for a number of years he has employed, in a crude way, a number of unconventional methods that are impossible if restricted to the conventional use of splints, levers, bandages, and gravity. He is not in any sense a reformer. He is merely in favor of rational investigation of the entire subject. Among other things he believes that fixation forces and constant distances derived from new appliances alone would eventually free our books and our teachings of much misuse of dynamics.

#### ACUTE APPENDICITIS ASSOCIATED WITH TABES MESENTERICA. REPORT OF A CASE.

By J. DAWSON WHITALL, M.D., Philadelphia, Pa.

The following case is rather interesting from the fact that there was no suspicion of a tubercular condition, nor had the child presented any symptoms, its presence being determined only in the course of an operation for appendicitis.

C. E., female, aged seven years. At birth and for at least two years, there was great difficulty with her nutrition, the child being a subject of marasmus. After that age she started to improve and became fairly well developed, yet never robust. She was always constipated and had rather an indifferent appetite.

I first saw her on July 15, 1912, when she was referred to me by Dr. H. P. Proctor. The patient looked flushed and "favored" the right side. Abdominal palpation revealed a distinct rigidity of the right rectus muscle with exquisite tenderness over the right iliac fossa. The abdomen was slightly distended. Temperature 101 F.; pulse 115. She had vomited once and had no desire for food. Diagnosis: Acute appendicitis. The treatment consisted in ice-bags to the abdomen and physiologic rest to the stomach. She was seen twelve hours later when all her symptoms were slightly worse: Pulse 128; temperature 102 F.

She was immediately admitted to the Northwestern General Hospital and prepared for laparotomy. While under ether before the incision was made, a mass could be palpated in the right iliac region. Upon opening the abdomen no free fluid was found; the caput coli was drawn to the surface, when a

<sup>8</sup> The force of gravity will be noted in the use of the weight and pulley, double inclined planes, tilted beds, arms or legs fastened by ropes to the ceiling, and in other fanciful attitudes.

mass (which at first glance seemed to be an abscess) came to the surface. The material was carefully examined and was seen to consist of a chain of enlarged lymphatic glands (yellowish-white and calcified, showing their chronicity) embedded in the mesentery at its root. They were situated about six inches from the cecum in the ilium. There being no soft glands, it was thought best to let them alone, for to have removed them would have necessitated an extensive resection owing to their very close relation to the mesentery. The appendix was removed and found acutely inflamed, but with no gangrene or perforation. The abdomen was closed in layers with no drainage. She had an easy convalescence as far as pain was concerned, but ran a rapid pulse (130-140) and a temperature of 101-102 F. for one week, when both became normal. She left the hospital on the fourteenth day. In September she had gained 15 pounds in weight and seemed normal in every respect.

The mere fact that in the one process (the appendix) everything was acute, while in the other everything was chronic in character (calcification being present with resulting quiescence) would lead one to say that the two conditions were entirely independent of each other.

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### **SUGGESTIONS ON THE TREATMENT OF WOUNDS AND FRACTURES.\***

*(Samuel Spencer Memorial Address.)*

By W. W. HARPER, M.D., Selma, Ala.

Following the panic of '93, Samuel Spencer conceived the idea of forming a great railroad system by combining a number of small, unprofitable and oftentimes bankrupt lines. Many of the financial wise-acres shook their heads in disapproval, but as Spencer stood upon tip-toe and viewed the Southern country, his heart became enthused with the words of Alabama's poet, as he sang:

"Land of the South, imperial land,  
How proud thy mountains rise;  
How sweet thy scenes on every hand,  
How fair thy covering skies.  
'Tis not for these, Oh not for these,  
I love thy fields to roam;  
Thou hast a dearer spot for me,  
Thou art my native home."

Stirred with such sentiments, he determined to give to his people those railroad facilities which they needed to make them happy and prosperous. How well he succeeded, every one here can testify, and

it seems the irony of fate that he should have been destroyed by the very forces which he had created. But as the mantle of the Prophet Elijah fell upon the shoulders of Elisha, and the great work of redemption continued, so has the mantle of Samuel Spencer fallen upon worthy shoulders; for under the wise and able administration of President Finley, the Southern Railway has gone forward with leaps and bounds, and is to-day one of the greatest factors in the development of the South. "Il est mort; vive le roi dans le coeur de chirurgiens." (The king is dead. Long live the king in the hearts of the surgeons.)

I now desire to discuss with you a few problems in railroad surgery.

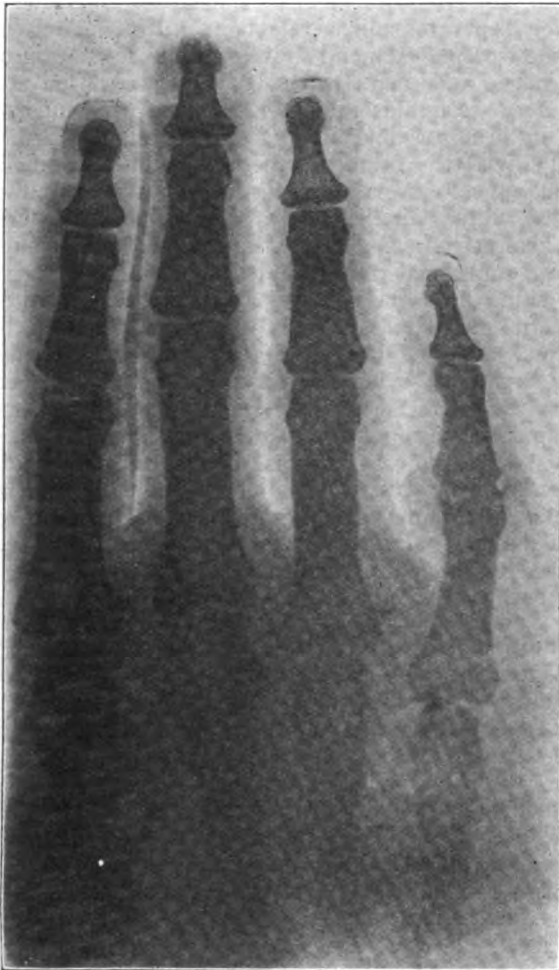
The scalp, having a thick covering of hair and seldom washed, is a fertile field for bacteria, and when wounded is easily infected. Therefore, when injured, the wound should be carefully disinfected in every detail. For some distance around it the scalp should be shaved dry, or wet with alcohol. After the area has dried it should be painted with tincture of iodine, and the surplus washed off with alcohol. In extensive lacerations and contusions the patient should be anesthetized in order to carry out the technic. For suturing these wounds, figure 8 sutures not only make ideal closures, but also control hemorrhage. However, the suture should not be too tight, or local necrosis will be produced. Where the parts are badly torn, free drainage should be provided and the stitches should not be too close together.

In contusions of the head, sufficient to produce a hematoma, and where there is doubt about there being a fracture of the skull, the bone should be exposed under strict asepsis. This is important when the contusion is over the silent centers; for while the depression may not be sufficient to produce immediate symptoms, it may suffice to cause epilepsy at a later date. In all fractures of the skull the patient should be given 40 to 60 grains of hexamethylamine a day. Cushing has found that this drug is excreted in part by the cerebrospinal fluid and that it is a powerful agent for inhibiting bacterial growth. In fractures involving the anterior fossa, the nose should be sprayed several times a day with some weak alkaline solution like Dobell's. When the fracture is in the middle fossa, the ear should be gently syringed twice a day with a weak B. C. solution and then lightly packed with sterile gauze.

Wounds of the face and hands should be closed with subcuticular stitches. This is imperative in the case of women, and sometimes women passengers

\* Delivered at seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

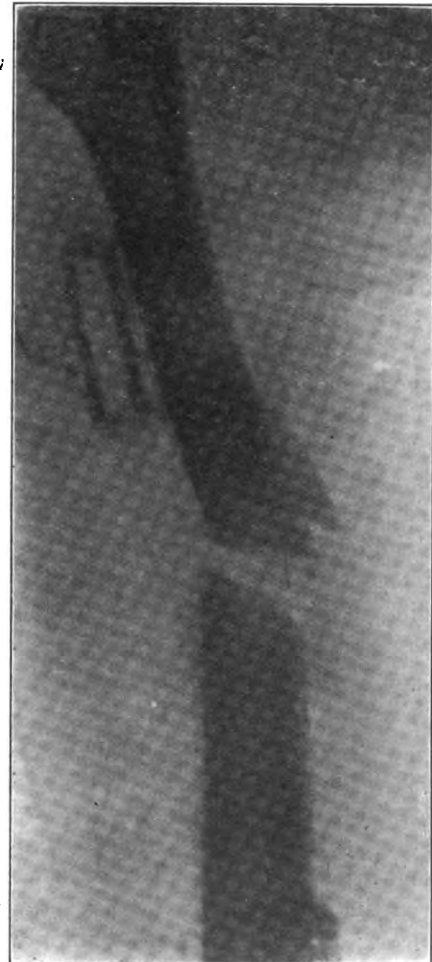
are injured. The ordinary suture leaves a stitch pock, and where many stitches are used on the face or back of hand they are quite disfiguring. I would therefore urge every surgeon to acquaint himself with this suture. To prevent the later stretching of the scar, the superficial fascia should be closed with interrupted fine silk before applying the subcuticular suture.



In applying Sayre's dressing for fracture of the clavicle it is necessary to powder well the axilla, and place a cloth between the arm and chest. Once a week the dressing should be removed and the parts washed with soap and water, dried, sponged with alcohol and again thoroughly powdered. Otherwise a dermatitis may develop which will give more discomfort to the patient than the fracture. Another excellent method of treating these cases is the figure of 8 about the shoulders, the arm being in a sling. This has the advantage of avoiding bandaging the arm to the side.

Every fracture of the patella should be wired if a full restoration of function is desired. When this

bone is broken, the torn ends of the periosteum and fascia usually drop down between the fragments and prevent bony union. The operation is best done about ten days after the injury. The joint is opened under rigid asepsis, all blood clots removed, the torn periosteum and fascia carefully trimmed, and the bones held in apposition by suture through the periosteum and fascia with kangaroo tendon or 30-day chromic catgut. It is not necessary to use silver wire or drill holes in the patella. The wound is closed without drainage and the leg encased in plaster-of-Paris in a slightly flexed position. Hyperextension is exceedingly annoying to the patient. Gentle, passive motion should be begun at the end of two weeks.



Fracture of the hip occurring in old people should be treated as a simple contusion. No appliance that keeps the patient in bed should be used. The patient should be made to sit up in bed every day as soon as the tenderness has subsided. He should be placed in a roller chair. To keep these patients flat on their backs means femoral thrombosis, pneumonia, and death.



In fracture of the tibia where it is practically impossible to maintain good apposition with any kind of splint, the bone should be exposed and the fracture held in place with Lane's bone plates.

In a Colles' fracture, the future usefulness of the hand depends upon perfect reduction of the deformity. In robust subjects general anesthesia will be required. After reduction the forearm is encased in antero-posterior plaster-of-Paris splints, the hand being well flexed and the splints not extending beyond the metacarpo-phalangeal articulation. This enables the patient to freely use the fingers and prevents the stiffness that followed the old plan of treatment. The bandage should be removed once a week and the parts thoroughly massaged. Where any difficulty is experienced in keeping in good apposition the broken ends in fractures of the metacarpus, metatarsus and phalanges, the fracture should be exposed under rigid asepsis, holes drilled in the bone, and the bone sutured with kangaroo tendon or 30-day chromic catgut. In all fractures, skiagraphs should be taken after reduction has been accomplished in order to determine the accuracy of apposition.

In injuries to the soft parts of the hand, the site is usually soiled with grease and dirt. Formerly much time was consumed and more pain inflicted by the surgeon in his zeal to cleanse the wound with soap and water. Now the hand is quickly cleansed by immersing it in a basin of gasoline, and after the gasoline has evaporated the parts are sterilized by tincture of iodine and alcohol. Wounds over tendons should be carefully sutured and an effort made to interpose fat between the tendon and skin, thus avoiding adhesion between these structures and subsequent restricted motion.

As no flexor tendon is inserted into the second phalanx, it is necessary to suture the ends of the extensor and flexor tendons over the end of the bone where an amputation is done through the second phalangeal articulation. Where this cannot be done, the flexor tendon should be sutured to the periosteum of the second phalanx; otherwise the phalanx remains practically useless. With extensive destruction of the tendon, let me urge the practice of filling the gap with a suture of fine silk, for it is claimed that in time the silk becomes encapsulated with fibrous tissue and a new tendon is formed.

Wherever there is reason to suspect soil contamination of the wound, it is a good practice to administer a prophylactic dose of antitetanic serum upon the receipt of an injury.

## Surgical Gleanings

**Tubulization Method of Nerve Suture.**—Dr. G. Torrance (*Charl. Med. Jour.*, Aug., 1912) reports a case of wrist drop with loss of sensation following a wound of the anterior part of the arm at the elbow, in which Foramitti's method was employed with success. Under ether an incision was made to expose the musculospiral nerve, which was found to be severed just above where it divides into the radial and interosseous, so that the ends were widely separated and were caught in the scar tissues of the wound; each end showed a bulb formation of the nerve and scar tissues; these were excised and the nerve terminals sutured together with a fine catgut in an absorbable tube prepared from the artery of a cow after Foramitti's method slightly modified; good apposition was obtained. The wound was closed with drainage and a cast was applied with the arm at right angles. A small blood clot formed in the superficial tissues and became infected from the skin, the wound was opened and this infected material evacuated and lightly packed. She left the hospital at the end of a week with healthy granulating surfaces. When seen a month after the operation the wound was perfectly healed and she had regained sensation in the hand except a narrow strip across the thumb at the base of the nail and could extend the fingers to a right angle with the palm. When seen more than a year later the patient reported that the numbness in the thumb had disappeared in about nine months and that her arm and hand were perfectly normal.

**Iodin Disinfection in Operative Cases.**—Drs. D. W. and E. S. Bullock (*Va. Med. Semi-Mo.*, Sept. 15, 1912) believe that the iodine technic is the best in use to-day. It is most certain and convenient to the operator, and least offensive to the patient. Solutions of ten per cent. and higher may be used without harmful effects, but the solution is equally effective when weakened to two per cent. In instances followed by dermatitis, recovery is prompt without treatment. The simplicity of the procedure arouses doubt, but its use will inspire confidence.

**Method of Localizing the Long Saphenous Vein in the Leg.**—Dr. F. W. Cochems (*Col. Medic.*, Sept., 1912) has found it difficult to recognize this vein in a number of cases, this necessitating considerable dissection with possible injury to tissues. Quite a help to the correct localization of the vein can be derived from a simple procedure, which he has frequently employed and which is as follows: Distend the vein of the extremity by constriction near the groin or by lowering the extremity; place the open hand on the inner side of the thigh over the region of the vein where it is to be ligated. Now, by percussion over the distended vein below the knee, a thrill can be detected by the hand lightly held on the thigh. This thrill localizes the vein so accurately that a longitudinal incision can be made at once directly over the course of the vein.

PUBLISHED  
BY THE

## International Journal of Surgery Co.

FRANK C. LEWIS, M.D., Managing Editor.

100 William St.—Woodbridge Building.  
NEW YORK, N. Y., U. S. A.

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## Editorial Department

NEW YORK, OCTOBER, 1912

### SUNLIGHT AS A CURATIVE AGENT IN LOCAL TUBERCULOSIS.

The value of sunlight or helio-therapy in surgical tuberculosis is no longer a matter of doubt. Probably the most striking work in this direction has been accomplished by Rollier of Leysen, Switzerland, who has treated a considerable number of cases with remarkably successful results. The mode of action of sunlight in this condition has not been thoroughly elucidated. Probably we have to deal with the combined effects of the actinic (chemical) and heat rays. While ordinary or convective heat exerts only a superficial action, the rays of the sun are far more penetrating, generating heat within the tissues, which manifests its beneficial influence by increasing circulation and elimination, promoting nutrition, stimulating phagocytosis and thereby augmenting the vital resistance. It is also probable that the actinic rays exert an antibacterial action.

Although sunlight would seem to be a common commodity, a generous supply is not everywhere obtainable. Rollier treats his patients at a place 5,000 feet above the sea level, and regards altitude as an important factor, but this view is not shared by many others. Thus, for instance, we find that a recent English writer, H. J. Gauvain (*Lancet*, August 10, 1912) takes a contrary view of this matter

and considers it a mistake to regard altitude and helio-therapy as synonymous. According to the investigations of Hahn, Robin, Binet, Duclaux, Barber and others, the actinic power of sunlight, even if intense on the mountains, exercises its greatest effect at the seaside. For this reason Gauvain prefers seashore to mountain sanatoria, especially in Great Britain, where the climate at the higher altitudes is damp, foggy, and very variable.

While helio-therapy is always to be preferred where obtainable, there is good reason to believe that, to some extent, it can be replaced by the electric arc lamp of high candle power or the marine search light. Investigations have shown that the light rays which they emit approximate in many respects to sunlight in therapeutic efficacy in the treatment of local tuberculous affections, and it would seem therefore that this method is well deserving of a trial where helio-therapy is not feasible. Of course, the ideal condition must always remain a generous supply of sunlight in a dry, bracing atmosphere.

### THE MANAGEMENT OF PERITONEAL WOUNDS.

The discussion on wounds of the peritoneum, which was one of the chief topics at the recent meeting of the International Congress of Gynecology, presents some interesting contrasts of present with past, although not yet obsolete, methods. To judge from the views expressed, irrigation of the peritoneal cavity and drainage seem to be steadily losing ground, and this fact is the more striking since it was emphasized by the experiences of gynecologists from all parts of Europe. Even the much used saline solution came in for a share of criticism. The tendency seems to be steadily growing that the peritoneum may, to quite an extent, be safely left to take care of itself, and that collections in the peritoneal cavity are best removed by dry means, which are much less likely to injure or impair the vitality of this membrane than irrigation. The single exception to this rule made by some of the participants in the discussion was in cases where the peritoneum had been soiled by contact with stomach or bowel contents. Proper emphasis was placed upon the necessity of not introducing bacteria into the abdominal cavity from without, especially with the hands or from the patient's skin, and the wearing of rubber gloves was generally advocated.

For establishing an approximately aseptic condition within the abdomen attention was also called to the importance of complete hemostasis, of cover-

ing with peritoneum all raw or oozing surfaces, and of exercising the most scrupulous care in preventing or in immediately repairing any injuries of the viscera, particularly the intestine, bladder or ureter. Wertheim summed up his treatment very tersely in the following words: Avoid mechanical, chemical, and thermic irritation to the peritoneum; operate as dry as possible; remove all necrotic tissue; cover all defects with peritoneum; and, if necessary, prevent retention by drainage per vaginam. The question of drainage, indeed, is still a vexed one, and the discussion revealed no consensus of opinion, although most of the participants were opposed to its use except under special conditions.

### **INFUSION ANESTHESIA.**

At present we seem to be in an era of intravenous medication, and it is therefore not surprising that the idea of introducing anesthetics into the body by this route should have attracted quite some attention. At the last meeting of the British Medical Association an interesting discussion took place on this subject, from which it appears that the intravenous use of ether presents a number of features that can be utilized to advantage in certain cases. According to Rood, who read the opening paper (*Lancet*, Sept. 14, 1912), this method obviates deleterious after-effects, both gastric and pulmonary, tends to prevent shock, avoids irritation of the respiratory tract, and may facilitate operation by placing the anesthetist out of the way of the surgeon. From the description it would seem, however, that the apparatus is cumbersome, inconvenient and expensive, and that its use requires a well-developed technic. Another difficulty is the impossibility of infusing the saline ether solution at a blood heat. Rood found the method especially satisfactory in cases in which the patients had been in a bad condition previous to the operation, as in ruptured gastric or duodenal ulcers, acute appendicitis, and intraperitoneal hemorrhage, and it is not improbable that the saline solution introduced together with the ether may exert a beneficial influence in cases of shock or hemorrhage. On the other hand, the experience of other surgeons showed that after-effects of an unpleasant character are not as rare as was at first thought and may even be more frequent than after etherization in the ordinary manner.

In this connection it may be interesting to note that the hypnotic hedonal has also been employed intravenously, dissolved in saline solution, with some

success. The anesthesia induced is said to be more quickly developed than with ether and chloroform, the muscular relaxation obtained much more marked, and after-effects less frequent. Unless carried out by one thoroughly familiar with the technic, however, this method is not as safe as etherization, as evidenced by a number of fatalities.

There is, nevertheless, sufficient reason for the belief that the intravenous use of anesthetics will prove a valuable addition to our resources in certain lines of surgery.

### **GYNECOLOGICAL HINTS.**

By RALPH WALDO, M.D., New York.

Before making a physical examination of the patient the outer clothing and corset should be removed while she is in a sitting posture on the table. The heart and lungs should be first examined. She should lie on her back with the knees flexed on the abdomen. All bands should be loosened and the abdomen thoroughly examined. This thorough examination of the chest and abdomen will in many instances determine whether or not an operation should be performed on the genital organs.

A highly padded table covered with a clean sheet is much better than an examining chair, and infinitely better than a bed for purposes of examination.

For an ordinary examination very few instruments are required. A medium-sized bivalve speculum, a small and medium-sized Sims' speculum, a Sims' depressor, and long dressing forceps are the instruments most frequently used. For a thorough exploration of the urethra, interior of the bladder and uterus, special instruments are required and only the expert will learn anything from their use.

It is very important to differentiate between a caruncle and a protrusion, or, more strictly speaking, a prolapse of the urethral mucosa from the meatus urinarius. In the former condition thorough anesthesia of the affected part with a 2 per cent. solution of cocaine and the application of a fine ligature will bring about a cure. On the other hand, if this method of treatment were resorted to in a case of prolapse, the condition would be rendered worse. Delicate plastic surgery with the patient under general narcosis is necessary for its cure.

Vulvitis and vaginitis are almost invariably associated, and if the former is cured the latter will usually disappear.

In a few instances vulvitis is due to parasites, or other external irritants, and when the cause is removed the disease will vanish.

# Department of Railway Surgery

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### THE PSYCHIC EFFECTS OF ACCIDENTS.\*

By TOM. A. WILLIAMS, M.B., C.M., Edin.,  
Washington, D. C.

The mental confusion, the concussion or compression of accidents is psychic, but not psychogenic; so they will not be considered here. They are, however, sometimes the source of the false ideas called postoneiric which must be considered auto-suggestions. The mental obtusion produced by a blow, moreover, exalts the suggestibility. This is too obvious to need further comment.

The emotion excited by an injury may act as a perturber of the apparatus of internal secretion; an accident which does not injure may create in a susceptible person so great a fear as to cause a sudden increase of secretion by the thyroid gland. The recent researches of Crile have shown that this occurs almost constantly in patients with hyperthyroidism when they are frightened by the prospects of an operation. It occurs also in these subjects as a result of anxiety or unusual excitement. Crile believes that the thyroid gland is an organ by means of which there is rapidly available a store of an activating substance for the use of the neuromuscular apparatus when there is special need of its greatest power. Such an occasion is presented by the need for escape from danger. As the preservation of the species in locomotory animals may depend upon capacity to respond with the maximum of vigor against impending danger, there has developed through the long agency by phylogeny this special organ of storing and rapidly setting free, when required, such substances as the thyroid juice. But it would be a mistake to confine the need for the greater activation of the gland to physical escape from danger in the crude sense. In the higher animals life is no longer regulated by experiences purely phylogenetic, but by the instincts. It is in the main controlled by ontogenetic incidents, which we call experience and which modify the reactions in fashions incalculably complex. The determinations of these modifications we call association of ideas. Now, quite apart from the fear of bodily harm there is a vast series of possible

events which man seeks to avoid and which he apprehends as dangers from which to escape. It is reasonable to believe that psychological situations of this kind are capable of reflexly demanding the hyperactivation afforded by the thyroid juice; that is, fear from any source may create a temporary hyperthyroidism.

That the thyroid secretion, however, is not the only one modified by emotion has recently been shown by a brilliant research of Cannon. He has demonstrated that the emotion of fear in animals is capable of stimulating the flow of adrenal secretion. He determined that in frightened animals the blood from the adrenal vein is so rich in adrenal substance as to be capable of inhibiting peristalsis in an isolated strip of intestinal muscle. This is due to the presence of, in appreciable amount, the adrenal substance, since contact of the latter in a 1:1,000,000 solution with the intestinal strip will also inhibit peristalsis.

We knew that the emotion of fear could inhibit gastric secretion, and Pawlow has shown that certain emotions of anticipatory joy can induce a flow of this secretion.

While it lasts, the fear state presents marked physical symptoms. It does so through the intervention of the autonomic nervous system which cannot be controlled directly by volition except in rare cases and those only after much practice. One such case I saw in Philadelphia.

This man, an athlete, has devoted much attention to control of his reactions. He is able to provoke at will the pilomotor reflex which produces the goose-skin appearance. He claims, too, that he can modify the rate of his pulse, but he did not succeed in demonstrating this clearly to me. He is able also to bring tears to his eyes by purely psychological means. Careful analysis shows that none of these reactions occur from pure willing. To produce them he has to assume a peculiar emotional state which he describes as one of mystery. His introspection of this is not clear enough for one to say that it is not a feeling of horror. He thinks it is not, because it is rather pleasant; but the pleasure may be that of accomplishing something for which he strives. The analysis need not further detain us, for I quote the case only to draw attention to the impossibility of affecting the autonomic nervous system by direct volition and to show the need of the intermediary of emotion for provoking autonomic reactions.

The above case may be compared with the simpler one described by Babinski and which I

\* Read at seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

observed in Paris in 1907. This timorous young girl without practice in control was so apprehensive of the pin scratch used to elicit the plantar reflex that she involuntarily drew up foot and leg at the approach of the pin, and then occurred pilo-motor contraction upon the skin at the upper and outer part of the thigh overlying the muscles which contracted in the defense reaction when one stroked the sole. The patient could not control this response in any way and its strict localization was unlike that of the preceding case in which the goose-skin was general when it came at all. Of course these cases were somewhat peculiar, but horripilation is a very common reaction to alarm. Other common consequences are alteration of the pulse rate and blood pressure. The frequency may become more or less than normal and the pressure may be raised or lowered; perhaps these differences depend upon the neurological type, or they may be expressions of the varying responsiveness of the ductless glands in various individuals or at different times.

Upon the digestion the effects of alarm are well known to be mal-appetite and constipation with all their accompaniments. Upon the respiration fear acts by a complete arrest followed by exaltation, or mere shallowing may ensue. It is a consequence of the inhibition of muscular activity known as fear paralysis. This may be regarded as a phylogenetic mechanism for stabilizing the individual preparatory to efficient action. The effect of terror upon the flow of urine and control of the bladder needs only mention. Even the ancients knew too how fear arrested the sexual functions. But the autonomic modifications of secretions soon cease as the fear-shock of the accident fades, and in a few days at most the animal experimented upon or the human being insulted resumes stable equilibrium.

*Psychogenetic Factors in Modifying Ideas and Feelings and Acts.* This benign eventuality, however, is often prevented in human beings by the property they possess of reviving in memory the ideas which clothe situations with horror, apprehension, anxiety. Especially prone to this damaging sequence are persons whose imagination has been made rampant by the cultivation of the credulous fears of childhood. Their fear reaction to that which they do not understand is a dominant one, and they are easily beset by an idea linked with fear. The commonest of the fears which result from accident or injury is that of bodily harm. It is very hard for a person of this type, when ignorant of his own structure and functions, to shake off the foreboding created by an impressive catas-

trophe, and it must not be forgotten that what others regard as trifling the victim may look upon as a catastrophe judged by its possible effect on him.

Prepossession by the idea of one's own disability is an inevitable consequence. This leads to abstraction from and inattention to the affairs of ordinary life, which, if not trifling by comparison, in the patient's mind, at least, cannot claim the consideration properly needed. Hence ensues the well-known diminution of the capacity to think, work or take part in social life. This incapacity when the patient becomes aware of it leads him to still further accentuate the import of his injury and thus to enhance his alarm about his health. Thus is constituted the vicious circle of hypochondria. Even a nosophobia may ensue, such as the fear of lost manhood, insanity, paralysis. Alarm at this impending disaster must of course be distinguished from the primary alarm due to the accident itself.

The next step in the drama is the reaction against the actual absence of physical signs of injury and the reassurances of medical men. This takes the form of an unconscious search by the patient for justification for his belief that he is indeed damaged. Hence arise the familiar exaggerations and falsifications of symptoms. These are made in perfectly good faith and honest belief, but they lead to simulation, though it be of disease pictures previously in mind or acquired in the course of the disorder.

It is only after the patient begins to be convinced in his heart that he is mistaken that there ensues the deliberate self-deception, the desperate effort to preserve the respect of himself and his friends that he feels he would lose by admitting the absence of physical disorder.

By this mechanism may spring what Brissaud called *synstrosis*, the desperate determination in sickness against all conviction of error. Even a favorable settlement of a law suit may not remove this attitude; only skillful psychotherapy will do so, and in severe cases considerable treatment.

*The Trauma is Not Psycho-pathogenic.* In itself neither trauma nor emotion can produce *synstrosis* or traumatic hysteria. The real factor is the ideational complex in the patient's mind. It is the idea he has of the consequences of his accident and not the emotion of the accident itself which maintains his abnormality. The psychological mechanism at work may be termed suggestion. Its modification is the same whether there is an accident or not. Illustrations may be found in the following cases:

A chief clerk, aged sixty-four, always rather peculiar in disposition, was seen with Dr. Clayton be-

cause of hemiplegia, which occurred suddenly, apparently in his sleep one night. He had no pain, but was numb all over, could not get up properly, stuttered, lisped, his tongue seemed tied. At 11 a. m. Dr. Clayton found the right eye wider than the left (equal next day), and that all movements could be made, but the right grip was weaker than the left. He thought it hysteria on account of the history. As in a few days he became completely hemiplegic, Dr. Clayton being doubtful, I then saw him.

*Deep Reflexes.* These were equal and not exaggerated, but volitional contraction suppressed the right gluteal reflex. The right toe extended on stroking the sole. This, however, was done voluntarily. We shall discuss this later.

*Motility.* The right arm was quite motionless, but moved when he yawned; the leg moved with difficulty; the contralateral synergic responses were equal, however. He stuttered in speaking.

*Sensibility* was normal.

*Psychic Examination.* This showed the pathogenesis. He was prone to old-maidishness and dyspeptic all his life. He was subject to petty worries and easily annoyed. Latterly he had feared losing his position to a pushing subordinate, and little family worries had occurred. A son had studied medicine, and he himself often had gone to the lectures, by which knowledge he understood the mechanism of his affection to be "a failure of the will to connect with what moves the arm." He defied me to make him move the arm by suggestion.

*Treatment.* The patient entirely acquiescing, I explained the fault was not in the connection, but in the controller himself, and admitted my inability to make his arm move, but declared that he could by practice. Having disarmed him thus, I easily inaugurated movements on the spot by suggestion, and he flexed and rotated the forearm and moved the fingers. Then his wife and doctor were called and shown the improvement. An encouraging prognosis was given, and a week's horseback tour advised. The iron was not struck while hot, so he did not recover for some time, but is now well.

*Hysterical Hemiplegia Complicating Various Bodily Disorders.* A woman of forty-one was seen with Dr. Nichols because of severe neuralgia of the left face, left hemiparesis, peculiar dreamlike crises, hysteria and nervous breakdown. An osteomyelitis had been present since infancy; she was supposed to have had gallstones ten years before, since when she had been constipated until relieved by agar prescribed by Dr. Nichols. The neuralgia had occurred from a chill at a funeral three years ago.

It had lately been accompanied by headache on the left side, during which the face burned, actually feeling hotter to the touch. Emesis was not present, and there was no family history of migraine.

Six months before, she had fallen on her right hand in an elevator and next day the left arm was paralyzed. Improvement took place after a verdict against the owner of the elevator and direct suggestion. But she constantly wore a leg brace and walked with great difficulty. She was taking many narcotics and possibly a good deal of alcohol. The dreamlike attacks were those typical of toxicosis, and I believed were accounted for by the narcotics in which she had indulged. She was tearful, restless, frightened, and at times querulous from the same cause.

*Examination.* The deep reflexes were exaggerated, the right patellar more than the left. There was a false clonus<sup>1</sup> when the left ankle joint was

*Motility.* There was no tremor and the diadochokinesis was good. There was no other motor deficiency except an apparent incapacity of the left arm and leg. In reality, however, the resistance of these was quite good *when she was unaware that I was testing it*; and the unconscious movements she made in bed were performed without any deficiency. I was able to produce a slight improvement in the volitional movements on the left side.

*Sensibility.* At first there appeared to be a loss to coolness, touch and vibration stimuli on the left leg, but it was very easy to suggest that she was mistaken, and she then readily both felt and localized these stimuli, except that she still declared that she could not feel vibrations in the lower limbs, especially the left. I could not demonstrate the falsity of her belief in this respect. There was hyperesthesia to pin pricks, and even sometimes to touch, over the left leg, thigh and face, and she declared that the neuralgic points of Valleix were still more sensitive. The visual fields were apparently restricted towards the left at the beginning of the examination; but a very little address soon showed that there was no restriction whatever of the form field. The red field seemed limited bi-laterally. The only other abnormality found was a deformity of the turbinate bones.

<sup>1</sup> By a false clonus is meant a series of contractions of the sural muscles, produced by the will, and not due to the successive stimuli by which a true clonus stretches the muscle during recoil of the joint. The false clonus is detected by the irregularity in extent and duration of the individual movements and by the great difference of interval between the several movements. Unless a kymographic record is made, the difference is hard to detect unless one is experienced. forcibly flexed.

*Diagnosis and Prognosis.* Although there was some physical disability from the old osteomyelitis, the condition of the reflexes and the absence of marked muscular atrophy showed that her incapacity was not due to organic disease of the nervous system, which would have caused marked reflex differences on one side of the body, with spastic phenomena and extensor plantar response, or would have produced a marked muscular atrophy, with or without loss of sensibility quite different in type to that found. Besides, the hemiparesis ceased while the patient's attention was distracted and could be modified by suggestion. It was therefore hysterical; and it was only increased by the leg-brace, which *fortified the patient's faulty notion* regarding her left leg.

The so-called hysterical mental state, however, had a quite different source, being in reality toxic and therefore unamenable to psychotherapy. The prognosis of this, however, was quite good if the cause were suppressed.

*Treatment.* (1) To cease taking drugs, using physical measures to promote rest, sleep and improved nutrition, taking a bland diet. (2) Leave off the leg brace. (3) Re-educate the sensibility of the face and leg. (4) Finally explain the nature and genesis of the condition and re-educate the patient to a better understanding of herself, and how to prevent a recurrence of her disorder by a better planning of the somewhat strenuous business life which she led.

This Dr. Nichols did, and the sensibility recovered, the paralysis ceased, the dream states no longer occurred, and the patient returned to work a different woman, until alcohol, some months later, produced another breakdown of which I have not the details.

*Hysterical Prurigo.* A girl, aged nine, came to the dispensary on account of itching of the right side of the face. Her frequent scratching had kept up a pityriasis. This had begun two years before after her father had for some weeks suffered much from a furuncle, when he had itched all over, scratched much, and spoken of it a great deal. He still did so when he ate pork, thinking that it made him itch. The little girl had only one boil on the right heel, and this she feared to scratch. It did not appear that the child's face had really been diseased, but I believed that the eruption was kept up by a morbid impulsion; so I prescribed sulphur ointment with the object of inculcating belief, impressed upon mother and child the need of never touching the face, and assured them that the itching would totally disappear in two weeks, which prediction was verified by the result.

*Hysterical Typhlitis after Appendectomy.* A girl of twenty was seen with Drs. Watkins and Stavely because of recurrences of right iliac pain with nausea and vomiting, but normal temperature and pulse, since three months. Two months before, the appendix had been removed for similar symptoms and found little changed, though containing a concretion of lime. At the time, the ovaries and gallbladder were found normal. The pains recurred every few days and lasted some hours, and were relieved by morphin or the Scotch douche. Examination showed only a psychogenic hyperesthesia in the right iliac fossa, controllable by indirect suggestion. Some sacral atonia, a slight retroversion, and intestinal sand could not explain a manifestly psychogenic tenderness. After being convinced that a determination to conquer a longing for the comfort and anodynes which sickness brings would cure her, she went back to her home and remains well.

It has been stated that a lawsuit is necessary to create traumatic hysteria. That this is not known is shown by the following case, where the idea of entire disability, created by the presense of a partial disability due to an accident, was very simply removed by psychotherapy without question of indemnity.

*An Incapacitating Hysteria Engrafted upon a Hematomyelia of the Right Hand and Arm Segments.* A man of twenty, apprenticed machinist since the age of sixteen, was seen with Drs. Conklin and Lewis Taylor in June, 1911. Two years before, the patient had dived to the bottom of a creek. The concussion which ensued kept him in bed with severe headache and unable to move for three days. Urinary incontinence lasted one day. He vomited at first. For nearly a year he was unable to walk without severe staggering, and his speech had been very difficult and still remained slow. He complained also of great sleepiness, and difficulty in holding his water, so that he was quite unable to go to work, more especially as the right hand was partly wasted and paralyzed, and he feared that what he knew to be an organic nervous disease might be aggravated by exertion. There was loss of sexual power. The boy was normal with the exception of the following abnormalities:

*Reflexes.* The right plantar was absent, but there was inversion of the foot on stroking the sole. The right triceps was diminished.

*Motility.* There was weakness of the extensors of the third, fourth and fifth digits of the right hand to an extreme degree. The opposition of the thumb was not quite weak. The grasp of



the hand and flexion of the wrist were relatively stronger. The abduction of the wrist was strong, the abduction of the fingers was quite weak. There was no other distinguishable weakness of the forearm.

*Sensibility.* He complained of a perpetual tingling down the right leg, which occurred with each beat of the heart, night and day, except during sleep. But there was no difference on the two sides in the perception of coolness and warmth, and the sense of attitudes was now normal, although he stated that for two months he was unable to recognize the position of his limbs. I could not, however, satisfy myself that he really felt less intensely than he alleged on the right leg when stimulated by the tuning fork and the point of a pin, so that this hypo-esthesia might have been suggested during my examination. A suspicion of its psychogenic nature was corroborated when I found that although he declared he would sway when he closed his eyes, he did not actually do so when his balance was deprived of the assistance of his vision while I pretended to be examining the eyes.

*Diagnosis and Prognosis.* The abnormalities of the reflexes, motility and subjective sensibility, as well as the slow speech and difficult retention, were considered due to organic changes, very probably hematomyelic, resulting from the blow on the head in diving. They were not amenable to treatment, but by no means incapacitating; for even the grasp of the right hand was fair and the right thumb could be opposed so that he could handle a tool. The prognosis as to efficiency was therefore good.

*Treatment.* Accordingly he was explained the organic nature of the part of his difficulty; he was also told that the disease was not progressive and would not be exaggerated by work, which would, on the contrary, improve him in every way and very likely rid him of his heavy feelings. I recommended him therefore to begin work and behave as if he were quite well. This he did, with the result that he continued at work and is in excellent condition at the time of writing, six months later.

No commentary should be needed to show that this boy's idleness proceeded not from actual disability, but from the idea which he and his people held regarding his condition. He was the victim of a false fixed idea that he was gravely ill, and this suggestion was the cause of his incapacity when I saw him, while the organic destruction of the central nervous system had at that time no direct significance in that respect.

Finally simulation must be considered. Two striking illustrations follow:

The patient was a young negro accused of murdering his wife, seen in consultation with Dr. Shute, the jail physician, on account of a suspicion that he was a case of dementia precox. I was informed that some physicians believed him hysterical, and that others thought he was suffering from syphilis of the nervous system.

On examination, I found a well developed man who showed no abnormalities of motility.

*Reflexes.* The knee jerk was made very violently (the explanation of this will appear), but there was no corresponding excessive reaction on tapping the tendon Achillis, nor was there extension of the great toe when the sole was stroked. The abdominal, cremasteric, conjunctival and pupillary reflexes were present and equal.

*Sensibility.* His suspicions: He was very unwilling to close his eyes for my examination of the sensibility, and, when touched by wool on the right side, opened them and jumped in alarm. He stated that he could not feel at all on the left side, but all his responses were made after much delay and he was evidently suspicious and alarmed. The sense of attitudes was not lost; for though he pretended not to know in what position I had placed his left foot, he imitated that position when asked to do so. He declared that he could not feel the increase as I gradually augmented to 15 kilograms my pressure on the left shoulder. As he was unsupported and in the upright position, he must have been conscious, at least, of the muscles of the opposite side acting to maintain his attitude. Of course, even had the impulses from the muscles on the affected side been interrupted, as he pretended, the sound side would have detected the pressure, but he persistently declared that he felt nothing at all.

The diagnosis of simulation was clinched by the fact that though he pretended not to feel a pin prick anywhere on the left side, yet when I distracted his attention by making him examine some pictures I had brought to elucidate his mental state, and jabbed him unexpectedly with a pin in the lower part of the left chest, he not only started violently but placed his hand over the spot, and first looked down and then at me. As I gave no sign, he slowly returned his eyes to the examination of the picture. The visual fields were not contracted.

As to his mental state, though it was apparently very dull, the stupidity he affected did not ac-

cord with the results of the tests I made. When I asked him how long he had been in jail he pretended with a vague stare not to know, eventually saying, "Two-three years." (He had only been a few weeks.)

By adopting a matter of fact manner and ignoring his expectations of meeting with the incredulity to which he had evidently been accustomed, I succeeded in learning that he had been a footman to a gentleman in the government service, who lived in a hotel and kept a white maid and a colored coachman who lived out. He did not admit, however, the remembrance of his name. His intelligence was thus of too low a grade even to pretend a tenable amnesia. I then showed him the pictures, in which at first he pretended not to recognize a tree, but later he saw the absurdity of his first statement that a man was holding in his hand a stick, when in reality it was a hose from which water was issuing, for he not only saw the absurdity when told, but detected the break in the hose. (My experience shows that not every individual, even of good intelligence, detects this discrepancy.) In another case, he recognized that a horse pulling a sled up hill was not properly hitched, the chain not being taut (this discrepancy is rarely detected by patients). He thus showed a power of perception utterly at variance with the stupidity he alleged to me and to previous observers. Some weeks later, he was said to have contractions of visual fields. On examination he again alleged hemianesthesia, but I again tripped him up on one occasion, although several methods failed on account of previous experiences. However, he ultimately confessed to feeling pin pricks on the back of his hand. He related various events to me quite clearly and accurately.

Being given the benefit of a doubt, which should not have existed, he was sent to the asylum; and I am informed that now he showed no somatic symptoms, and merely the mental state of belonging to a low type of intelligence without any psychosis.

I should add that the hemianesthesia presented the character of the hysterical type, that is to say, it was absolute, affected all segments equally, and reached the mid-line exactly. Whether its source was in medical suggestion or simple simulation could not be ascertained; for, of course, the patient did not confess, and the numerous medical examinations which had been made without the precautions upon which Babinski has insisted afford a strong presumption of suggestion of med-

ical origin, since it is the commonest source of anesthesia of this type. The exaggeration of the knee jerks was a voluntary one, and can be easily simulated, as anyone can prove by trying it. This mode of reaction can be detected by an experienced observer. It probably was the result of the interest shown in it at the first examination.

The case was clearly, then, one of simulation from desire to avoid punishment for the crime he had committed. The form in which the symptoms manifested themselves was determined by the faulty technic in previous medical examinations. The fault was similar to that stigmatized by Soury when he criticized Rainaldi's localization of cortical centers in conformity with the symptoms manifested on tapping different parts of the crania of patients during hypnotism. "The symptoms corresponded with the text-books which the different experimenters had read." What the observers had described was the result of their own suggestion.

And so it was in this case, both for the hemianesthesia and the knee jerk. Moreover, by his mental reaction, the patient did his best to conform to the dementia syndrome which his interlocutors had in mind. But when a precise and rigorous method of examination had been pursued, a very different picture presented itself, that of deliberate simulations in an ignorant person of low intelligence.

(To be Continued.)

## ASSOCIATION OF SEABOARD AIR LINE RAILWAY SURGEONS.

The following has been received from Dr. J. W. Palmer, Secretary and Treasurer of this Association:

"Our next meeting—the eleventh annual meeting of the Association of Seaboard Air Line Surgeons—will be held in Tampa, Fla., October 30th and 31st. Preparations are being made to make this one of the most profitable, pleasant, and enjoyable meetings in the history of the Association.

"The scientific part is the most important feature, and we can not have a successful meeting without papers; therefore, I ask you to read us a paper. At least, give us a report of some of your interesting cases. Send me title of same *at once*, so it may appear in the temporary program.

"Begin to make plans and arrangements to attend, as we want every member and his entire family to be with us at the meeting."

Just as we were going to press we received the program of the meeting, which, we regret, reached us too late to find insertion in this issue. From the list of excellent papers and social features provided, we feel confident that both from a scientific and social standpoint this session will surpass every other in the history of this Association.

## Book Notices

**A Treatise on Fractures and Dislocations.** By Lewis A. Stimson, B.A., M.D., LL.D., Professor of Surgery in Cornell University Medical College, New York. New (7th) edition, thoroughly revised. Octavo, 930 pages, with 459 engravings and 39 plates. Cloth, \$5.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1912.

If the question were asked which is the best "all around" text-book on fractures and dislocations, most of us doubtless would reply without hesitation—Stimson's. The popularity of this work is clearly evidenced by the fact that it has gone through six editions. In this, the seventh, the main additions deal with the subject of treatment. As we have had occasion to mention in previous issues of this journal, Dr. Stimson is not inclined to accept Lane's teachings as to the necessity of operative measures in the majority of fractures, but maintains an attitude of judicious conservatism as will be seen from the following remark: "I still feel that the advantages claimed are inadequate to offset the discomforts and risks of the operation, and that in most hands even those advantages would not be obtained; that external splints would still be needed for fixation, and that suppuration followed by delay in union or death would frequently occur." Other interesting additions are on the treatment of old dislocations, the section on fractures of the small bones in the hand and foot, and fracture of the external tuberosity of the humerus. The many excellent illustrations, which have always characterized this work, have been supplemented by more than one hundred others, from photographs and skiagrams. The book is one which may be justly claimed as indispensable in every doctor's library.

—P. J. R.

**The Treatment of Fractures by Mobilization and Massage.** By James B. Mennell, M.D., B.C., Cantab, etc., Late Resident Medical Officer of St. Thomas' Home; House Surgeon, Casualty Assistant and Clinical Assistant to the Physical Exercise Department, St. Thomas' Hospital. With an Introduction by Dr. Lucas-Championnière. London: MacMillan & Co., Limited. This book is timely, coming as it does when there

is an awakening on the subject of fractures with a tendency to pay more attention to their pathology and to substitute a more rational treatment for many

of the time-honored methods handed down from "the fathers."

Dr. Mennell comes from the clinic of Prof. Lucas-Championnière of Paris, one of the world's greatest surgeons, bringing with him, to his work in St. Thomas' Hospital, London, much of the enthusiasm and some of the methods that have made that distinguished teacher so successful in his fracture work.

Much of the book is devoted to the pathology of the soft parts with the evil results of too much immobilization. All this is good and makes it well worth the reader's time. Yet, in our opinion, and this seems to accord with that of many leading American surgeons, Dr. Mennell's attitude toward bony deformity is extreme. He has been somewhat carried away by his enthusiasm and would treat the displacement of bony fragments as a matter of secondary consideration. No doubt in the hands of a man of the genius of Lucas-Championnière, or of a surgeon who has spent a long term in his clinic and has got his methods at first hand, this may do no harm, but it is dangerous teaching for the average surgeon, and will do much to prejudice many against the book and the methods which it advocates.

Mr. Lane, Dr. Murphy and others are doing so much to show us the evil results of bony deformity that we must accord these results, at least, an equal rank with changes in the soft parts due to fracture and its mistreatment.

The early massage of the whole limb, even before the fracture is reduced, kept up at frequent intervals during the whole treatment, would, we fear, in the hands of any but the most skillful do much harm. The same may be said of the early mobilization of nearby joints.

The book is mechanically well done, and the author has a happy style which makes it interesting reading, though sometimes one wishes he had condensed a little. The illustrations seem too few in number for such a work.

The author has done an excellent service in affording English readers an opportunity of learning the use of mobilization and massage as applied to fractures by Lucas-Championnière. While we do not predict a general adoption of these methods by American surgeons, it will open our eyes to the dangers of too long immobilization, make Volkmann's contractures less frequent, help us to understand the cause of the long period of loss of function following so many of our fractures, and teach us to use massage and mobilization at a much earlier date in the after-treatment.

The introduction by Prof. Lucas-Championnière commends Dr. Mennell's book and his work. He emphasizes the importance of gentleness in massage and calls attention to the fact that it differs radically from that used by the masseurs, points out the dangers of immobilization and bandaging as commonly practiced, and condemns the routine treatment by operation. It is unfortunate that this chapter should be in French.—A. W. C.

**An Anatomical and Surgical Study of Fractures of the Lower End of the Humerus.** By Astley Paston Cooper Ashhurst, A.B., M.D., Professor of Applied Anatomy in the University of Pennsylvania, Surgeon to the Out-Patient Departments of the Episcopal and Children's Hospitals of Philadelphia, Assistant Surgeon to the Philadelphia Orthopædic Hospital, Fellow of the College of Physicians of Philadelphia, of the Philadelphia Academy of Surgery, etc., The Samuel D. Gross Prize Essay of the Philadelphia Academy of Surgery, 1910. Philadelphia and New York: Lea & Febiger, 1910.

Dr. Ashhurst's book is a real contribution to our knowledge of fractures of the lower end of the humerus. He first calls our attention to some features of the anatomy of the joint, the mechanics of its movements and the steps in the development of the bones of the child. These are well illustrated with drawings and x-ray pictures.

By a series of experiments on the cadaver, he shows the effects of violence on the elbow-joint, both direct and indirect. These he illustrates by a number of photographs. He shows us why placing the arm in a position of acute flexion tends to draw the bony fragments into place, emphasizing the action of the triceps more than that of the stretched capsule, as has been previously taught.

He takes up each variety of fracture in detail, giving causes of fracture, symptoms, relative frequency, methods of diagnosis, treatment, and a summary of results, all illustrated with skiagrams and drawings. Then follow reports of 56 cases taken from his own service, and all, with one exception, treated by hyper-flexion. These are all, except one, infants, children or adolescents, the average age being six and one-half years.

His series illustrates well the various fractures to which the lower end of the humerus is liable, including seven cases of separation of the epiphysis. It is interesting to compare the causes of these fractures—falls on the outstretched hand, falls on the flexed forearm, falls striking on the elbow, falls with the arm under the chest and a mother lifting her child with one hand—the majority being due to indirect violence.

In summing up his results he classes those cases

as "perfect" in which the patients have full flexion and extension with no loss of the "carrying angle." Of the 47 cases traced, 81 per cent. are "perfect," 8 per cent. have limited motion, 8 per cent. cubitus varus and 2 per cent. valgus. These results are rather remarkable when we compare them with other reported series, by such men as Coenen, Cotton, Destot and Hilgenreiner, with "perfect" results ranging from 21 to 28 per cent.

In his treatment he emphasizes the following points:

1. Reduce at the earliest possible moment, using over-extension, traction and manipulation with the fingers.
2. An anesthetic is rarely necessary (used in only two of his series).
3. Put up the arm with a roller bandage in hyper-flexion, without a splint, the whole limb hanging free from the shoulder, but the hand tied to the neck.
4. Put up the forearm in the same (antero-posterior) plane as the arm to preserve the "carrying angle."
5. Begin to increase the angle in two weeks, reaching a right angle in twenty to thirty days, after which the forearm is carried in a sling.
6. No passive motion is used. Active motion by the patient himself is begun after consolidation occurs.
7. In only one case was operative treatment used and that some months after to release a nerve.

An interesting feature is the beginning of faulty treatment in a number of cases—often an internal angular splint applied by an interne—the skiagram showing the fragments unreduced. Then another picture taken after putting the elbow in hyper-flexion shows the fragments well reduced.

It is gratifying to know that good functional results can be obtained in so large a proportion of cases of a class of fractures regarded by most writers as offering a gloomy prognosis.

Ashhurst's original investigations on the mechanism of the joint and the causes of the various forms of fractures add an important chapter to our knowledge of this subject.

The x-ray pictures are often disappointing and leave much to the imagination, but in many cases this is, no doubt, due to faults in printing.

—A. W. C.

## Surgical Gleanings

**Treatment of Tuberculosis by Means of Artificial Pneumothorax.**—Dr. von Geeraerd (*Jour. Med. de Brux., Wiener klin. Wochenschr.*, No. 38, 1912) reports that Foramitti's method of establishing an artificial pneumothorax in order to produce collapse of the lung in tuberculosis has been successfully resorted to in numerous cases, as shown by the subsidence of the symptoms and anatomically by the cicatrization of cavities. Owing to the improvement in the technic unpleasant accidents during the operation are much less likely to happen. The procedure is indicated only in unilateral pulmonary tuberculosis or in cases in which the condition in the other lung is curable. Acute tuberculosis is a contraindication, but in the subacute form, with caseation and broncho-pneumonia, good results have been obtained, while in patients with hemoptysis it may be even a life-saving measure. The presence of dense pleural adhesions renders it impossible to establish an artificial pneumothorax, but if they are not too firm an attempt can be made to separate them. Even a partial pneumothorax may effect a cure. The method is also contraindicated in the presence of intestinal tuberculosis. Among the complications of the operation are air embolism, the so-called pleural reflex, subcutaneous emphysema and hydrothorax. Air embolism can be avoided by careful technic and is not dangerous if oxygen is administered. The pleural reflex, which makes itself manifest by syncope and epileptiform attacks, is very rare, while subcutaneous emphysema and hydrothorax are not to be regarded as serious complications. In a cured case the collapsed lung is converted into a fibrous mass with cicatrization of cavities. The curative effect is due to the immobilization of the lung, the compression of the lymph channels, and the exclusion of oxygen from the tubercle bacilli, which, being aerobic micro-organisms, are thereby interfered with in their growth. Among nineteen cases reported by Geeraerd the operation could not be carried out in four instances; in five it was completely successful, and in four it was followed by improvement, only one failure being recorded. The results are the more satisfactory since the method was employed only in patients living under wretched conditions with advanced tuberculosis.

**Uterine Cancer.**—Dr. G. Kamperman (*Jour. Mich. S. M. S.*, Sept., 1912), from a study of 212 cases, formulates among others the following conclusions: 1. Cancer holds fifth place as a cause of death in Michigan. 2. During the last five years the death-rate due to cancer in Michigan has increased 15 per cent. 3. Among gynecologic patients one in every twenty-five has cancer of the uterus. 4. In five-sixths of all cases the disease is primary in the cervix, and in one-sixth it is primary in the fundus. 5. The age limit is wide, from 28

to 75 years. The average age is 48 years. 6. Carcinoma of the cervix occurs most frequently between 35 and 55 years of age; carcinoma of the fundus between 45 and 65 years of age. 7. Carcinoma of the fundus develops over a longer range of years than carcinoma of the cervix. 8. Patients with cancer of the cervix present a history of child-bearing in 92 per cent. of all cases. Among patients with cancer of the fundus the percentage is 72. 9. Heredity has very little part in the development of uterine carcinoma. 10. Carcinoma of the uterus can be cured by operation. In order to obtain a cure, however, the diagnosis must be made early. 11. The early diagnosis depends on giving close attention to the earliest symptoms. An increase in bleeding in a woman approaching the menopause demands a careful investigation and a microscopic examination of tissue from the cervix and fundus. 12. The first symptom of carcinoma of the uterus in 73 per cent. of cases is an increased menstrual or an irregular inter-menstrual discharge of blood. 13. Watery and foul discharge and pain are symptoms occurring at a later stage of the disease. 14. Carcinoma of the uterus occurs in many healthy and robust looking women. Cachexia occurs only in advanced stages of the disease. 15. The radical abdominal operation offers the only absolute cure for carcinoma of the cervix. Carcinoma of the fundus can be cured by a less radical operation. 16. In inoperable cases temporary relief can usually be secured by a palliative operation. 17. Most of the patients afflicted with this disease die either from some terminal infection or from uremia.

**Simple Fractures of Long Bones in Children.**—Mr. H. H. Sampson (*Lancet*, Aug. 17, 1912) sums up his views on treatment in the following conclusions: 1. The treatment of simple fracture by open operation gives more perfect results than can be obtained by any other method at present in general use. 2. With reasonable care the dangers of such treatment are negligible. The mortality has been *nil*, and no instance of wound infection has occurred in a complete series of cases. 3. The insertion of a metal plate gives no trouble after a clean operation. 4. Operative treatment should be applied to recent fractures, and not reserved for the imperfect results of conservative measures. The chance of a perfect result being obtained is diminished by the length of period which elapses between the accident and the operation. 5. Rarefying osteitis and sinus formation do not occur after a clean operation. 6. In view of these results it is reasonable to urge the more extended adoption of Mr. Lane's methods for the treatment of simple fractures.

**Carbon Dioxide Treatment of Nevi.**—Mr. J. L. Bunch (*Brit. Med. Jour.*, Aug. 10, 1912) during the past two years and a half has treated over 2,000 nevi by solid carbon dioxide, apart from other skin diseases. For stellate, capillary, cavernous, and flat pigmented nevi the method is excellent, and gives

most satisfactory results. For linear nevus and nevus verrucosus, where there is much thickening and warty growth, it is not so good, but these cases are, of course, very rare. For port-wine stains (*taches de feu*) it depends how far the corium and underlying structures are involved; the most unsatisfactory cases are port-wine stains with a nodular, irregular surface and warty projections, and for these there is no really satisfactory method of treatment. But for the vast majority of nevi there is no more effective, satisfactory, and painless remedy, nor one which gives such uniformly good results.

#### Habitual Dislocations of the Shoulder-Joint.—

Mr. E. D. Telford (*Lancet*, Aug. 3, 1912) employs the following technic in operating upon these cases: With the arm abducted to a right angle, a curved incision some seven to eight inches in length is made in the line of the anterior fold of the axilla. The incision follows the lower border of the greater pectoral, and is continued for some distance down the arm along the inner border of the coraco-brachialis muscle. The lower edge of the pectoral is defined and retracted upwards and inwards. The interval between the packet of axillary vessels and nerves and the coraco-brachialis is at once apparent. The vessels and nerves are gently retracted inwards, and the coraco-brachialis is drawn outwards. In this manoeuvre the anterior circumflex artery will probably need division, and the separation, in a downward direction, of the fibers of the coraco-brachialis muscle will obviate harmful traction on the musculo-cutaneous nerve. If the arm be now rotated outwards and the head of the humerus thrust forwards, the subscapularis tendon is seen in the floor of the interspace between the neuro-vascular packet and the coraco-brachialis. If the subscapularis be now in part divided and in part retracted, the underlying capsule is exposed. A large oval piece, measuring  $1\frac{1}{4}$  inches by one-half inch, is easily removed, and through the opening thus formed the interior of the joint is readily inspected and explored for any loose body or other abnormality. The long axis of the ellipse lies across the capsule at right angles to its fibres. The opening is closed by sutures of formalin catgut, and the incision in the subscapularis tendon is repaired by a second layer of sutures. The insertion of sutures is much facilitated by inward rotation of the arm. The wound is then closed without drain. The operation by this route is almost bloodless, and in the second of Telford's cases it was not necessary to leave any ligature in the wound. The after-treatment consists in fixing the arm to the side for eight days, after which the sutures are removed, and both active and passive movements are begun in all directions excepting abduction. At the end of the third week movements of abduction are made, and within six weeks free movements of the shoulder should be possible in all directions.

#### Treatment of Esophageal Cancer with Radium.

—Dr. Guisez (*Gaz. des Hôp.*, No. 58, 1912) gives

a report of 26 cases of cancer of the esophagus, especially in the early stages, treated by direct application of radium. In three incipient cases this treatment caused a disappearance of the dysphagia and obstruction by the tumor, with formation of cicatricial tissues, while in 23 of the more advanced cases it acted as a palliative, reducing the difficulty in swallowing. The application of radium was made by enclosing 0.01 to 0.02 gm. and later 0.05 to 0.1 gm. in a capsule suspended by silver wire and introduced by means of an esophageal sound. Its insertion was followed by abundant salivation, which was regarded as due to the action of the radium, since it failed to result from the insertion of the sound itself. The applications were repeated at intervals of two days, the total duration of the treatment being sixty hours. The most favorable results were obtained in the smooth infiltrated type of esophageal cancer without marked proliferations or ulcers.

#### Pregnancy After Artificial Impregnation.—

Dr. J. Hirsch (*Berlin. klin. Wochens.*, No. 29, 1912) points out that Marion Sims was the first to devise a method of introducing spermatozoa directly into the uterus. He refers to the importance of mastering the technic of the procedure, since his six successes occurred in the last nine cases treated. It was carried out in the home of the patient. The spermatic fluid was withdrawn undiluted from the condom by means of a dry sterilized Braun syringe. The syringe was warmed to about 38 C. by means of a metal blade attachment which was heated at one end by an alcohol lamp. The spermatozoa are more sensitive to heat than to cold. The uterus was grasped at the portio and drawn straight downward, so that the nozzle of the syringe would cause as little injury to the mucous membrane as possible. Previous irrigation of the vagina was avoided as well as any unnecessary manipulation. Only a few drops of spermatic fluid were introduced in order to avoid uterine colic. A tampon moistened with the remainder of the spermatic fluid was placed against the portio vaginalis. The woman was directed to rest in bed for eight to twenty-four hours. Before resorting to this procedure it is necessary to determine the caliber of the cervical canal and dilate it in case of stenosis, as well as to correct any existing retroflexion or other displacement. The presence of gonorrhea in either husband or wife should be ascertained and the spermatic fluid first examined for active spermatozoa. Artificial impregnation is preferably undertaken immediately after cessation of a menstrual period, and not, as a rule, until the lapse of five years of sterility. In one of Hirsch's cases, however, the attempt was made after three years of a barren marriage on account of the advanced age of the woman (thirty-six years), with success at the fifth attempt. In conclusion, the author refers to the statistics of Rohleder that one-half of the 10 per cent. of sterile marriages cannot be relieved by the customary measures, and that accordingly in these artificial impregnation is to be considered, as it gives 33.5 per cent. of successes.

**Surgery in Diabetics.**—Professor Umber (*Deut. med. Wochensch.*, No. 30, 1912) believes that the indications for surgical intervention in diabetics do not differ essentially from those in persons not affected by this disease. This statement applies particularly to surgical procedures in cases of mild diabetes, in which, if feasible, the operation can be delayed until the urine is free from sugar. If, however, this is not advisable, as in appendicitis or severe injuries, intervention can be resorted to at once. As a rule, the gangrene of diabetics is not due to the disease, but to the co-existent arteriosclerotic process. When arteriosclerosis is present, the diabetic disturbances of metabolism, even if the glycosuria is of moderate degree, are apt to increase, but recede after the removal of the gangrenous area. As a rule, an arteriosclerotic gangrenous process cannot be arrested by internal treatment. If gangrene is associated with phlegmonous or general infection, it is best not to wait too long for the line of demarkation. Incision should be avoided in furunculosis associated with mild diabetes, better results being obtainable by reducing the amount of sugar in the urine, by moist applications, or later, by Bier's hyperemia. Comparatively slight trauma may cause great damage in severe diabetes. If in cases of this kind with acidosis surgical intervention cannot be delayed until the metabolism has been improved, it is advisable to administer alkalis by mouth and rectum and to give opium. If possible general narcosis should be replaced by local anesthesia, but if the latter is not adequate, ether-oxygen anesthesia, if necessary with the addition of a little chloroform, is indicated. It is always advantageous to determine exactly the character of the diabetes in the individual case and to ascertain whether any existing acidosis is peculiar to the condition or has been exaggerated by the surgical complication.

**Perforation of the Esophagus by Foreign Bodies.**—Dr. A. T. Jurasz (*Med. Klinik*, No. 31, 1912) considers esophagotomy as the modern method of treating cases of perforation of the esophagus by foreign bodies. The case he reports is a sad commentary upon the frequent failure of ordinary attempts at removal in such instances. The foreign body consisted of a small piece of bone which the patient, a woman, fifty-three years old, stated that she had been able at first to feel with the finger in the upper throat. A physician called three days after was said to have pushed down the bone with the stomach tube, and in this way probably caused so much damage to the esophageal wall as to lead to a severe infection and inflammation. When admitted to the hospital she was in a marked septic condition, with a phlegmonous process in the neck and mediastinum. Operation was at once resorted to, the mediastinum being opened on both sides and an abscess about the esophagus exposed and evacuated. This was followed by esophagotomy and introduction of a tube to permit of feeding. Convalescence was rapid, the wounds healing except on the right side, where discharge of a purulent

secretion persisted. On the twenty-ninth day, when the patient was no longer in the hospital, a profuse hemorrhage took place from the wound in the neck on the right side, which necessitated ligation of the right common carotid. The woman recuperated, but nine days later developed a cerebral abscess and basal meningitis, with fatal termination. The cerebral abscess and meningitis were probably due to infectious emboli. From this experience and others the author cautions urgently against the forcing down of foreign bodies into the stomach and the customary methods of extraction without the aid of the eye.

**Osteomyelitis of the Patella.**—Owing to the rarity of this condition a case reported by F. Bartsch (*Deut. med. Wochensch.*, No. 31, 1912) is of special interest. A boy, aged twelve years, who had been suffering with a carbuncle on the chin, was attacked with a swelling at the right knee-joint. This was diagnosed as a prepatella bursitis and an incision made. As the wound failed to close and a purulent discharge continued, the patient was admitted to the hospital. Examination showed an effusion into the knee-joint below the patella, which gave a sensation of roughness to the probe. In a radiograph the patella appeared divided into two parts, one of them evidently a sequestrum. A plaster-of-Paris dressing was applied for fourteen days, after which an incision was again made and the sequestrum, which occupied the upper periphery of the patella, was removed. The sound passed into a small opening which communicated with the articular cavity, but otherwise the suppurative process was outside the joint. Recovery was complete after a number of weeks, the function of the joint being restored almost to the normal. There is every reason to assume that the source of the infection in this case was the carbuncle. According to Bartsch the treatment in this condition should consist in prompt operative intervention, in order to avoid the danger of suppuration of the joint and ankylosis.

**Diagnosis of Chronic or Interval Appendicitis.**—Professor Küttner (*Münch. med. Wochensch.*, No. 34, 1912) has found that the insufflation of air into the rectum considerably facilitates the diagnosis in chronic appendicitis. In the case of a twelve-year-old girl in whom the symptoms were indefinite, the careful insufflation of air into the cecum caused complaints of severe pain about the navel and below toward the right side, these closely resembling the pain experienced during her attacks. Operation showed that the appendix was imbedded in fresh adhesions which could be easily separated. A number of similar cases are reported in which the diagnoses could be confirmed by the presence of this sign. For the purpose of comparison, Küttner employed this diagnostic method in other conditions, but without causing the least discomfort or pain. Before resorting to its use the intestine must be sufficiently empty to permit the free passage of air.



## Monthly Index of Surgery and Gynecology

- Acquired Hallux Valgus: Late Results from Operative and Non-operative Treatment (Bost. M. and S. Jour., Aug. 29, 1912). C. R. Metcalf, Concord, N. H.
- Anatomy of the Anal Canal and Its Bearing on the Etiology and Treatment of Some Common Rectal Diseases (Northw. Med., Sept., 1912). A. C. Crookall, Seattle, Wash.
- Anesthesia by Intratracheal Insufflation of Air and Ether (Jour. Mo. S. M. A., Sept., 1912). W. E. Leighton, St. Louis.
- Anoci-Association: A New Principle in Operative Surgery (Tex. S. Jour. Med., Sept., 1912). G. W. Crile, Cleveland.
- Appendicitis Complicating Pregnancy (Jour. A. M. A., Aug. 24, 1912). P. Findley, Omaha.
- Appendix Tumor (An. of Surg., Sept., 1912). F. E. McKenty, Montreal.
- Biliary Colic Without Gallstones (N. Y. S. Jour. Med., Sept., 1912). I. S. Haynes, New York.
- Bismuth Poisoning (Surg., Gyn. and Obst., Sept., 1912). L. Mayer, G. Baehr, New York.
- Blood Transfusion: Indications, Methods and Results (Bost. M. and S. Jour., Aug. 22, 1912). B. Vincent, Boston.
- Bone Transplantation and the Use of Rib as a Graft, a Discussion On (An. of Surg., Sept., 1912). C. A. McWilliams, New York.
- Cancer of the Uterus, a Study of 213 Cases, with Special Reference to Early Diagnosis (Jour. Mich. S. M. S., Sept., 1912). G. Kamperman, Ann Arbor.
- Cancerum Oris or Noma, Radical Surgery in Cases of (Jour.-Rec. Med., Sept., 1912). B. S. More, Atlanta, J. S. Clifford, Charlotte.
- Central Dislocation of the Femur (Surg., Gyn. and Obst., Sept., 1912). G. T. Vaughan, Washington, D. C.
- Chronic Visceral Pain in Relation to Surgery and Psychotherapy (Charl. Med. Jour., Sept., 1912). T. A. Williams, Washington.
- Complete Obstruction of the Duodenum Resulting from Impaction of a Large Gallstone (Surg., Gyn. and Obst., Sept., 1912). J. E. Thompson, Galveston, Tex.
- Conclusions Drawn from 100 Prostatectomies (Am. Jour. Urol., Sept., 1912). O. C. Smith, Hartford.
- Contusions and Sprains of the Back, on the Importance of Early Functional Treatment in Cases of (Lancet, Aug. 17, 1912). F. Shufflebotham.
- Decompressive Operations in Intracranial Complications of Otitic Origin, on the Value of (Brit. Med. Jour., Aug. 24, 1912). W. Milligan, Manchester.
- Diagnosis of Latent Gonorrhea in the Female (Calif. S. Jour. Med., Sept., 1912). W. S. Johnson, San Francisco.
- Diagnosis of Surgical Lesions from the Standpoint of the General Practitioner (Northw. Med., Sept., 1912). R. H. Fowler, Brooklyn, N. Y.
- Diverticulitis of the Large Bowel, the Diagnosis of. A Clinical Review of 27 Cases (Jour. A. M. A., Sept. 14, 1912). H. Z. Giffin, Rochester, Minn.
- Drainage of Acute Infectious Lesions of the Abdominal Cavity (N. Y. Med. Jour., Sept. 14, 1912). J. W. Kennedy, Philadelphia.
- Drainage of Kidney by Incision for B. Coli Communis Infection in Pregnant and Parturient Patients (Jour. A. M. A., Sept. 14, 1912). E. P. Davis, Philadelphia.
- Enlargement of the Prostate (Tex. S. Jour. Med., Sept., 1912). C. Johnson, Fort Worth, Tex.
- Epithelial Grafting as a Means of Effecting the Sure and Rapid Healing of the Cavity Left by the Complete Mastoid Operation (Lancet, Aug. 17, 1912). C. A. Ballance, London.
- Exophthalmic Goiter, Surgical Treatment of (Am. Jour. Surg., Sept. 1912). J. T. Schell, Phila.
- Experimental Devascularization of Segments of Intestine With and Without Mechanical Obstruction (Jour. A. M. A., Aug. 24, 1912). J. S. Horsley, C. C. Coleman, Richmond.
- Extrauterine Pregnancy, Symptoms and Diagnosis of (Can. Jour. Med. and Surg., Sept., 1912). A. B. Keyes, Chicago.
- Foreign Body Appendicitis, With Especial Reference to the Domestic Pin. Analysis of 68 Cases (An. of Surg., Sept., 1912). R. H. Fowler, Brooklyn, N. Y.
- Fractures of the Greater Tuberosity of the Humerus, With an Operative Procedure for Fixation (An. of Surg., Sept., 1912). D. B. Phemister, Chicago.
- Fractures of the Larynx (Jour. Mo. S. M. A., Sept., 1912). W. E. Sauer, St. Louis.
- Fractures, Recent Simple, the Operative Treatment of (Vt. Med. Mo., Sept., 1912). J. B. Wheeler, Burlington.
- Fracture, Simple, of the Long Bones in Children, the Operative Treatment of (Lancet, Aug. 17, 1912). H. H. Sampson, London.
- Fractures, the Treatment of (Am. Jour. Surg., Sept., 1912). G. G. Davis, Philadelphia.
- Gallstones, Diagnosis of (Med. Rec., Sept. 14, 1912). W. D. Hamilton, Columbus, O.
- Gastro-enteroptosis, Operative Treatment of (Bost. M. and S. Jour., Sept. 12, 1912). J. Ransohoff, Cincinnati.
- Habitual Dislocation of the Shoulder-joint, the Treatment of (Lancet, Aug. 8, 1912). E. D. Telford, Manchester.
- Hernias of the Uterine Appendages (Louisv. Mo. Jour. Med. and Surg., Sept., 1912). A. P. Heineck, Chicago.
- Hyperthyroidism, the Surgical Treatment of (N. Y. S. Jour. Med., Sept., 1912). M. B. Tinker, Ithaca, N. Y.
- Immunity, With Reference to Some of its Relations to Surgery (Buf. Med. Jour., Sept., 1912). L. Hektoen, Chicago.
- Indications for Major Obstetric Operations (Bost. Med. and Surg. Jour., Sept. 19, 1912). F. S. Newell, Boston.
- Influence of Rectal Diseases on the General Health (Louisv. Mo. Jour. Med. and Surg., Sept., 1912). G. S. Hanes, Louisville.
- Intestinal Obstruction, Some Clinical Aspects of (Med. Times, Sept., 1912). F. D. Gray, Jersey City, N. J.
- Intrathoracic Surgery, Note on: Division and Circular Suture of the Thoracic Aorta (An. of Surg., Sept., 1912). W. M. Boothby.
- Intratracheal Insufflation Anesthesia, Its Value in Thoracic and in General Surgery (N. Y. S. Jour. Med., Sept., 1912). C. Elsberg, New York.
- Intussusception of the Ileum in Infants and Children (Jour. S. C. M. A., Sept., 1912). J. S. Horsley, Richmond.
- Irreducible Dislocations of the Shoulder and Elbow Joints, the Surgical Treatment of (N. Y. S. Jour. Med., Sept., 1912). L. W. Hotchkiss, New York.
- Ligature of One Ureter (An. of Surg., Sept., 1912). L. Frank, L. Baldauf, Louisville.
- Malignant Neoplasms of the Accessory Sinuses (Jour. Ind. S. M. A., Sept. 15, 1912). A. E. Bulson, Fort Wayne, Ind.
- Nævi, the Treatment of, Based on More Than 2,000 Cases (Brit. Med. Jour., Aug. 10, 1912). J. L. Bunch, London.
- Nephrolithotomy (Ky. Med. Jour., Sept. 15, 1912). H. H. Grant, Louisville.
- New Procedure for the Repair of the Upper Portion of the Vagina in Cases of Prolapse of the Uterus (Superior Colporrhaphy) (Lanc.-Clin., Sept. 7, 1912). C. A. L. Reed, Cincinnati.
- Nitrous Oxide—Oxygen—Ether Anesthesia: Notes on Administration: A Perfected Apparatus (Surg., Gyn. and Obst., Sept., 1912). F. J. Cotton, W. M. Boothby, Boston.
- Non-traumatic Diaphragmatic Hernia; Operation; Recovery (Surg., Gyn. and Obst., Sept., 1912). G. L. Scudder, Boston.
- Perineorrhaphy in Principle and in Practice (Am. Jour. Obst., Sept., 1912). A. Sturmdorf, New York.
- Physiologic Basis of Thoracic Surgery (Jour. A. M. A., Sept. 7, 1912). M. Flint, New Haven.
- Pistol Ball Penetration of the Left Ventricular Cavity Without Hemorrhage, with Remarks on Treatment of Heart Wounds (South. Med. Jour., Sept., 1912). H. B. Gessner, New Orleans.
- Plastic Surgery of the Bones, Recent Advances in (Jour. Mich. S. M. S., Sept., 1912). J. B. Roberts, Philadelphia.
- Pott's Disease of the Spine, an Operation for (N. Y. S. Jour. Med., Sept., 1912). R. A. Hibbs, New York.
- Practical Experiences with Spinal Anesthesia (Pa. Med. Jour., Sept., 1912). L. W. Kohn, Scranton.
- Procidentia Uteri, Suprapubic Plication of Vagina and Conjoined Shortening of Uterosacral and Broad Ligaments (Surg., Gyn. and Obst., Sept., 1912). W. M. Polk, New York.
- Prostatectomy, Functional Results in (Jour.-Lanc., Sept. 10, 1912). E. S. Judd, Rochester, Minn.
- Rectosigmoidoscopy (Jour.-Lanc., Sept. 10, 1912). A. C. Strachauer, Minneapolis.
- Results of Permanent Intubation of the Thoracic Aorta (Surg., Gyn. and Obst., Sept., 1912). A. Carrel, New York.
- Retro-uterine Displacements (Long Isl. Med. Jour., Sept., 1912). W. L. Bradley, New York.
- Roentgen Ray, Practical Application of, in the Management of Malignant Growths (Jour. A. M. A., Sept. 14, 1912). C. E. Skinner, New Haven.
- Rupture of the Liver, with Report of a Case (Old. Dom. Jour. Med. and Surg., Sept., 1912). G. B. Johnston, Richmond.
- Sacro-iliac Joint, the (Col. Med., Sept., 1912). H. W. Wilcox, Denver.
- Separation of the Epiphysis of the First Metacarpal Bone (An. of Surg., Sept., 1912). W. P. Coues, Boston.
- Sigmoidovesical Fistula: Report of Two Cases (Am. Jour. Urol., Sept., 1912). J. L. Boehm, J. M. Dean, St. Louis.
- Sliding Hernia (Surg., Gyn. and Obst., Sept., 1912). P. F. Morf, Chicago.
- Some Interesting and Probably Original Surgical Procedures (Tex. Med. Jour., Sept., 1912). A. F. Sampson, San Francisco.
- Spinal Anesthesia by Stovaine, with Remarks on 1,000 Cases (Brit. Med. Jour., Aug. 17, 1912). F. C. Madden, Cairo, Egypt.
- Spontaneous Rupture of the Uterus (Col. Med., Sept., 1912). S. D. Van Meter, Denver.
- Statistics in the Radical Operation for Cancer of the Cervix Uteri (Am. Jour. Obst., Sept., 1912). J. W. Bovee, Washington, D. C.
- Sterility, Some Observations on (Am. Jour. Surg., Sept., 1912). S. W. Bandler, New York.
- Structural Scoliosis, the Treatment of (Lanc.-Clin., Aug. 31, 1912). A. H. Freiberg, Cincinnati.
- Subclavian Aneurysm with Successful Endo-aneurysmorrhaphy (Jour. A. M. A., Sept. 21, 1912). E. Drennen, Birmingham, Ala.
- Suppurative Conditions in the Abdomen and Pelvis, with Special Reference to Their Surgical Management (Memph. Med. Mo., Sept., 1912). J. A. Crisler, Memphis.
- Surgery of the Arteries. Some Personal Experiences (Surg., Gyn. and Obst., Sept., 1912). A. Vander Veer, Albany.
- Surgery on the Battlefield (N. Y. S. Jour. Med., Sept., 1912). G. H. Torney, Surgeon General, U. S. A.
- Surgery of the Bile Ducts (N. Y. S. Jour. Med., Sept., 1912). J. B. Deaver, Philadelphia.
- Surgical Hemostasis, a History of (N. Y. Med. Jour., Aug. 24, 1912). W. C. Borden, Washington, D. C.
- Surgical Tuberculosis; Its Needs and Treatment (Lancet, Aug. 10, 1912). H. J. Gauvain.
- Suture Material (Lanc.-Clin., Sept. 7, 1912). C. T. Souther, Cincinnati.
- Talma Operation for Cirrhosis of the Liver, with Report of Cases (Surg., Gyn. and Obst., Sept., 1912). E. A. Vander Veer, Albany.
- Thyroid Gland, Surgery of the (Jour. Kas. M. S., Sept., 1912). D. W. Basham, Wichita, Kas.
- Tuberculosis of the Patella (Ill. Med. Jour., Sept., 1912). J. B. Murphy, Chicago.
- Two-Step Method of Enucleation of the Prostate (Jour. M. A. Ga., Sept., 1912). A. L. Fowler, Atlanta.
- Ununited Fractures, Treatment of (Surg., Gyn. and Obst., Sept., 1912). E. Martin, Philadelphia.
- Ureteral Ligation, the Effects of; Experimental and Clinical (Surg., Gyn. and Obst., Sept., 1912). J. D. Barney, Boston.
- Vaccinal Treatment of Surgical Tuberculosis. Preliminary Note on a Method of (Lancet, Aug. 24, 1912). J. Fraser, J. F. McCowan, Edinburgh.
- Vesical Neoplasms (N. Y. Med. Jour., Sept. 7, 1912). J. F. McCarthy, New York.
- Wounds of Naval Warfare (N. Y. S. Jour. Med., Sept., 1912). C.

# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

NOVEMBER, 1912

No. 11

## Original Articles

### GANGRENE.\*

#### A New Effective and Rational Method of Selecting Amputation Levels.

By W. R. McKINLEY, M.D., Columbus, Miss.

A short paper advocating this method of selecting levels for amputations in cases of gangrene was read at the Mississippi State Medical Association meeting in April. The method is a new one, yet practicable and rational in its application. Surgeons who formerly found themselves plunged into a dilemma in selecting the site for amputations in cases of gangrene can by practicing this procedure solve the problem to their entire satisfaction. Certainly, the question of selecting the amputation level arises in every operative case. By referring to textbooks and the literature upon the subject it is found that amputation above the knee is advocated by some operators, at the knee by others, and below the knee by still others. They all fear the possibility of having to amputate the second time.

The principles involved in the pathology of gangrene are generally understood by surgeons, yet no one has pointed out any rational method of determining just where to amputate. Some one has advised the use of a bandage in estimating the vascularity or efficiency of the capillary circulation as a means of selecting the amputation level, but experience teaches us that this plan is sometimes misleading, since a capillary anemia and hyperemia can be produced in many instances much lower down than the vascular embarrassment which causes the necrosis.

In this brief article upon the surgical treatment of gangrene no attempt will be made to consider the subject in its generalizations. All surgeons are more or less familiar with gangrene in general and senile gangrene in particular, since many pages and even volumes have been devoted to its consideration by men of great eminence and experience. Much has been known of the subject from the beginning

of medical history. While all this is true, there is yet one feature that is an open question. There is very little difference of opinion among surgeons as to the definition, etiology, classification, termination and pathology of gangrene, and equally so as to the treatment of most cases, perhaps. There is practically no difference in the teachings as to how to operate or when to operate, but as to where to operate authors and teachers alike disagree materially. In fact, the remarkable diversity of views is striking.

In the review of the literature upon the subject, one must observe that many advise amputation below the knee for gangrene of the toes and feet; yet probably many more recommend amputation above the knee. Unless this method or a better one is practiced there can be no fixed or dogmatic rules.

The greatest value that obtains in this plan lies in the fact that it removes the cause of trouble. That mode of procedure or treatment is the more logical or scientific which tends to remove the etiological factor in a given pathological condition. Especially is this true when the procedure, though radical, affords a broad field for conservative surgery. The rationale of such a method is easily appreciated when the etiology of gangrene is considered. The causative factor lies in the bloodvessels, nearly if not always in the arteries, at the bifurcation or narrowing of the lumen, whether occasioned by traumatism, direct or indirect violence, or by infection, direct or metastatic. Its usefulness is greatest in gangrene of the lower extremities. It might, not improperly, be termed an ante-mortem dissection of the femoral, popliteal, anterior and posterior tibial and peroneal arteries, beginning at a low level.

In every amputation in cases of gangrene the operator is confronted with the proposition of selecting the site, except perhaps in those in which the surgeon works by his rule, and this is to amputate above, at, or below the knee. For this reason operators of limited experience, who regard surgery an evolutionary science, sometimes find themselves in considerable confusion in observing the work and consulting the writings of others in

\* Read at the seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

search of knowledge by which they might determine, in a given case, the site for amputation.

Formerly, nearly all surgeons advised high levels for amputation in cases of gangrene. Even now a majority, including von Manteuffel, Heidenhain and their followers, advocate the high level, fearing that second amputations might become necessary. Among a small minority of modern surgeons, however, there is a growing tendency to operate at lower levels. The extent of their conservatism probably is that at the time of operation, if the large vessels are found to be obliterated, a higher amputation is done. Among a still smaller number of the minority of modern conservative surgeons, the view is expressed that the level (low) of pulsation (arterial) should determine the site of amputation.

Certainly these surgeons are masters of the principles involved, yet so far as is known they advocate no method by which the exact anatomical point for amputation can be accurately determined.

The method that is now advocated of determining the level for amputation is a very simple one. Briefly speaking, it consists in systematically following the bloodvessels from below upward, beginning at the lowest level within apparently healthy tissue. This plan is simple, as any surgeon can follow up the bloodvessels from what seems to be the line of demarkation to the point of vascular obstruction. The method is effective and rational, since the cause of the gangrene is found and removed.

No amputation is effective unless it is made at a level sufficiently high to remove the vascular obstruction, but why select a site higher than the circulatory obstruction or insufficiency, when it can be accurately determined by dissection? If, by this method, the vascular obstruction is removed, there is no probability of gangrenous flaps. The subject may have gangrene again, but there must be a second infection or obstruction. There is no reason to fear that a second amputation may be needed when this mode of determining the site for amputation is employed.

More than one vascular obliteration, if such should occur in the same member, should not prevent an observing surgeon from determining the proper site for amputation, for he can pass judgment upon the efficiency of the blood supply in his careful dissection upward. He can judge when it is ample; if not, when it is normal. Then, again, the bone and the flaps may be severed below the point of obstruction provided collateral circulation is ample in the flaps. The method is practicable and rational, since it has to do directly with bloodves-

sels and the blood supply; all the more so, since gangrene is caused by circulatory disturbances such as thrombosis, embolism, arteriosclerosis, infective or not.

This method may be practiced in all types of gangrene when amputation is indicated, but it is especially rational in senile and diabetic cases, because the atheromatous and sclerotic vessels can be recognized and followed. They truly remind one of the term: pipe-stem or slate-pencil.

No bandage or tourniquet is used, certainly not until the level of vascular trouble is reached. When this is done and the blood supply is ample, gentle compression may be made in order to lose no blood in those who can ill afford it.

Again, by following this plan, the wound may be closed by sutures, by bringing the flaps together loosely. The sutures should not be made taut. Before closing, however, warm, not hot, normal salt sponges may be utilized in estimating the vascularity of the flaps.

Six amputations have been done by the writer within recent years in which this method was practiced. For the sake of brevity, detailed case reports are not made. They were all, however, in the senile class, except one patient who might be considered pre-senile since the age was under thirty years, yet who presented atheromatous arteries. The remaining five subjects ranged in age from sixty-five to eighty-two. The wounds in all the cases were closed by sutures, and in no instance did necrosis appear in the flaps, nor was a second operation needed. Recovery was satisfactory in every case.

#### CONCLUSION.

So far as is known, no surgeon heretofore either has practiced or has advocated this method of systematically following up the bloodvessels in selecting the levels for amputations in cases of gangrene.

Among the advantages afforded by this mode of procedure are that it is simple and easily accomplished; that it is effective and rational, and that no second operation should ever be needed when it is practiced by surgeons of reasonable experience; that the wound may be closed by loose suturing and with no fear of flap necrosis; and furthermore, that in much debilitated subjects the shock as produced by operation at the lower levels compared to that at higher levels is curtailed, with the additional advantage, that the method affords surgeons a broad field for greater opportunities in the conservation of tissue.

# WRIGHT'S SOLUTION IN INFECTED WOUNDS.\*

By HUBERT A. ROYSTER, A.B., M.D., Raleigh, N.C.  
*Surgeon to Rex Hospital; Surgeon-in-Chief to St. Agnes  
Hospital; Surgeon to the Southern Railway.*

Our modern methods of drainage in surgery are far from perfection. Notwithstanding the ease of applying drains and in spite of the number of lives that they save, it yet remains that all drainage is not good drainage. When is a drain not a drain? When it is a stopper. Gauze alone has long since been given up as proper material; rubber tubes, gutta-percha tissue and cigarette drains are the order of the day. Sometimes exit for wound discharges is best secured by leaving off these foreign bodies altogether, discarding the usual packing and relying on the natural forces of gravity and least resistance. If these processes can be aided by any substance applied externally to the wound so much the better. Such a substance I believe we have in the so-called "Wright's solution."

Soon after Sir Almroth Wright propounded his opsonic theory, he gave out a solution which he recommended for external application, quite in harmony with his views on the systemic infective processes. The formula as written for me by Dr. F. J. Clemenger, of Asheville, N. C., a former student in Wright's laboratory, is as follows:

## LOTIO SODII CITRATIS.

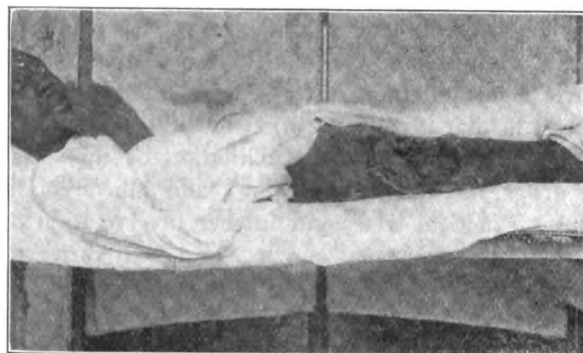
Sodii citratis .....gr. ii.  
Sodii chloridi .....gr. xx.  
Aquae, q. s. ad. ....fl.oz. i.

This combination acts by virtue of the properties inherent in the two sodium salts, and they are quite different. The sodium citrate dissolves the plasma or albuminous substance which is thrown out from the inflamed tissues, while the sodium chloride by its osmotic action keeps up a continuous flow of serum, which washes away the wound products. In other words, the sodium citrate prevents coagulation and the sodium chloride produces irritation. Both these processes are desirable in any infected wound to insure efficient elimination of its debris.

The very practical manner in which the solution was first tested by Wright proved its value. In furunculosis, where it was found impossible to abort the boil by other means, he cut out of oiled silk a covering for the entire inflamed area, leaving a window at the opening of the furuncle over which were placed several layers of gauze saturated in the solution and kept constantly wet. As soon as the irritation became annoying to the patient a dry dressing was put on for the time. This is really

an excellent method for managing boils, preferable in many cases to an incision and old-fashioned drainage.

More than a year ago, I learned of Wright's solution from some correspondence of Dr. Clemenger's, and shortly thereafter I had occasion to employ it in two or three seriously infected wounds—dense phlegmons with little tendency to point, the sort which would usually be subjected to extensive multiplex incisions. The results in these cases were remarkable. In each instance there was a favorable termination without scar, mutilation or deformity. Since that experience we have never been without a supply of the solution. In conjunction with Bier's hyperemia, which, in my judgment, is a most useful principle to the surgeon who believes that it is not all of surgery to cut, this solution has rendered us great assistance. It is placed over the localized area of infection, while the constricting bandage may be applied as usual without any conflict. Six cases of infected hands, arms and legs



were thus treated in our clinic. Later on I used the solution for a variety of conditions: Over the areas of entrance and exit in gun-shot wounds, as a dressing for empyema cases, and particularly in those sloughing traumatism seen so often by the railroad surgeon. It has been found efficient in cases of so-called "cellulitis" occurring without history of an injury. In all of these instances a noteworthy effect is produced. The wounds seem to drain of their own accord, the exudate is liquefied and dissipated, and the parts always appear to clean up quickly. Undoubtedly a pronounced local leucocytosis occurs. I do not believe the solution should be continued beyond the point of cleaning the wound and getting rid of all the products of infection. In my experience the solution rather retards healing after its work is done, and it is wise to discontinue its use when the wound has ceased to discharge and when granulations begin to appear. The accompanying photograph shows a wound caused by a car wheel passing across the thigh, with extensive laceration of the soft parts but with-

\* Read at the seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

out injury to the bone. It was first treated by Wright's solution, but, at the stage exhibited, this was discarded and the balsam of Peru and castor oil mixture used until healing was complete.

The manner of applying the solution is very simple. It is used cold as made up according to the formula and poured into a clean basin. Several layers of gauze are saturated in the solution and laid over the parts. A covering of oiled silk may or may not be employed; a thick dry dressing may be sufficient. The gauze next to the wound is to be kept moist for such a time as may be necessary. I have never seen any untoward irritation and have not heard patients complain of any pain from the application.

There appears to be no literature on this subject. Careful search has failed to reveal the publication of any previous paper dealing definitely with Wright's solution. Skillern,<sup>1</sup> of Philadelphia, has recently noted his experience in its employment when combined with hyperemia, but he does not give details or emphasize the widespread uses which may be made of the solution itself. A paper by H. B. Hemenway<sup>2</sup> on "The Therapeutic Use of Citric Acid and the Citrates," adds interest to this matter in that it calls attention to the benefits to be derived from the internal exhibition of this class of drugs in "brawny swelling" and allied conditions. Practical trials and further investigation of the treatment, internal and external, will prove of great value to the practicing physician.

<sup>1</sup> N. Y. Medical Journal.

<sup>2</sup> Jour. Amer. Med. Assoc., April 6, 1912.

## **FRACTURE OF THE STYLOID PROCESS OF ULNA WITH REPORT OF A CASE.**

By JOHN N. DIMON, M.D., New London, Conn.

In descriptions, etc., of fractures, a fracture of this portion of the ulna seems to have been entirely overlooked, or else the condition is so rare that authors fail to mention it. Indeed, until the discovery of the x-ray, this injury could well have escaped detection.

About three years ago, F. H. H., a carpenter by trade, came to me for treatment. He had fallen from a defective scaffold about two weeks previously, striking on his right hand and side. Two surgeons had examined him, diagnosed a sprain, and advised liniments and bandaging. No other attempt at fixation was employed.

I found the hand much swollen and very pain-

ful, and anesthesia of the ring and little finger present. The x-ray showed the styloid process of the ulna lying nearly half an inch from its proper place and apparently floating in the wrist-joint. The age of the patient (thirty-six years) precluded separation of the epiphysis. The hand could be freely adducted. I put the hand, wrist and forearm in plaster and in about four days renewed the dressing, as the swelling was much reduced and the hand less sensitive. Altogether he was under my care for about a month. He had very little use of his hand and went to one of the "natural bone-setters," who yanked his hand around, and after four visits he left him.

The man was unable to work for over a year, and at the present time can only do a portion of his usual work. The wrist is weak and the ring and little fingers are numb and cannot be flexed to any extent.

I have not x-rayed the part recently, but judge from the information that there has been no repair and that the wrist will probably never be any more useful than at present.

He sued the company for whom he was working for \$10,000 and the jury awarded him \$2,840 damages.

If any readers of the JOURNAL have had similar cases, I shall be pleased to hear of them.

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## **TREATMENT OF FRACTURE OF THE HUMERUS BY MODIFIED BUCK'S EXTENSION.\***

By J. PEEBLES PROCTOR, M.D., Athens, Ga.

The humerus, like other long bones, is subject to fracture in any part of its extent, this accident constituting about 8 per cent. of all fractures. For the sake of description fractures of the humerus are divided into three classes according to position, as those of the shaft, those of the upper extremity, and those of the lower extremity. While all three classes present a number of symptoms in common, each has its own characteristic features, depending upon the cause, position, etc., of the injury. Again fracture of the humerus, regardless of position, may vary from the simple greenstick to the most extensive compound comminuted form, and be attended with practically every complication known to fractures.

From the physician's standpoint, fracture of the

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\* Read before the second annual meeting of the Eighth Congressional District Medical Society, Greensboro, Ga.

humerus at any point is a bugbear both as regards treatment and results. Owing to the anatomical relations of the part it is well-nigh impossible to apply any form of splint, be it plaster-of-Paris, cardboard, metal or wood, which will hold the fragments in proper position, especially if in the upper portion of the bone or in any part of the shaft, and more especially if the patient is allowed



Fig. 1. Modified Buck's extension.

to walk about with the arm in a dependent position. In fact, so difficult is this to accomplish that many surgeons advise and resort to operation—open incision, exposure of the bone and either suturing, wiring or pegging the fragments in position—in this way avoiding overlapping and consequent shortening, but not always securing firm union or perfect alignment.

Taking into consideration then the difficulty of applying an effective splint, coupled with the fact that the humerus affords attachment for and is consequently subject to the action of such powerful muscles as the deltoid, latissimus dorsi, pectoralis major, biceps, triceps and coracobrachialis, there is small wonder that fracture of this bone so often results in lateral and longitudinal displacement of the fragments, with overlapping, shortening, deformity, imperfect union and impaired function.

On September 22, 1908, I was hurriedly summoned to see a man who had been injured in a run-away accident. Examination of the patient, a white man sixty-five years of age, revealed only a simple oblique fracture of the shaft of the left humerus in its upper third. The deformity was corrected and a rectangular splint applied. As the patient lived several miles in the country and experience had taught me that the splint might not hold, I admitted him to the hospital. My fears were realized on the next day when the arm was

dressd. The fragments had slipped out of position; there was a great deal of swelling and pain, extending from the shoulder to the finger tips. The soft tissues appeared to be water-logged and the entire surface of the arm was covered with blisters filled with a sero-sanguineous fluid. Application of another splint of any kind was out of the question, and even though the man was kept in bed the deformity recurred as fast as corrected. It was up to me in every sense of the word. "Necessity" kept me thinking hard for a couple of days, when it suddenly occurred to me that some modification of the Buck's extension apparatus might help. Accordingly the following was rigged up: An upright 1 in. x 2 in., with a pulley in its upper end, extending from the floor to four inches above the surface of the bed; a padded leather strap to go around the forearm immediately below the elbow-joint; a piece of cord, one end of which was fastened to the leather strap, the other, to which was attached the weight, running in the pulley; a piece of padded board upon which the injured arm rested, extending from underneath the left scapula to the edge of the bed. Running from the wrist and hand of the injured side across the patient's chest and attached to the right side of the head of the bed was a soft cotton bandage of sufficient length to keep the elbow-joint flexed at an angle of slightly less than ninety degrees. The forearm acting as the lever, the long end of which was below the leather band, which served as the fulcrum, the weight on the end of the pulley cord furnishing the power, and the long end of the lever being held



Fig. 2. Modified Buck's extension.

in one position by the cotton bandage across the chest, whatever traction there was must necessarily be transmitted through the elbow-joint to the arm. The fracture was now reduced and the weight adjusted to overcome the muscular contraction in the arm. (In this case a common brick was used.)

This apparatus allowed free inspection of the limb, which required dressings for the blisters several times daily, overcame muscular contraction, kept the arm in perfect alignment, and prevented overlapping of the fragments and shortening.

On the twelfth day, after the formation of sufficient callus to hold the fragments in position, a light plaster-of-Paris bandage, extending from the top of the shoulder to the wrist, was applied and the patient allowed to get up and carry the arm in a sling. At the end of four weeks the cast was removed and the arm carefully examined with the x-ray, which showed a perfect result.

When seen three months after removal of the cast the patient told me that the arm was not giving him any trouble and he was beginning to use it freely.

This treatment I believe to be especially applicable to fractures of the shaft or upper extremity of the humerus. It has for its objects the overcoming of muscular contraction and the holding of the fragments in proper position until sufficient callus, nature's own splint, can be thrown out around the seat of fracture; by steady traction for a period of ten days to two weeks it reduces the tone of the muscles sufficiently to allow of the application of a plaster-of-Paris splint without danger of a recurrence of the displacement before the union can become firm. Its greatest objection is confinement of the patient to bed, but, to my mind, in order to obtain a good result, this is infinitely better than to let him walk around with a feeling of security and an imperfect splint, which, when removed reveals an arm shortened, deformed in outline, weak in union, impaired in function, and good only in that it fills his coat sleeve and completes his anatomy.

### **EXCISION OF THE ELBOW FOR TRAUMATISM.\***

By HOWARD J. WILLIAMS, M.D., Macon, Ga.

The general indications for excision or resection of the elbow-joint, like the operation on other joints, are disease and traumatism. In disease the operation is often required for tubercular or syphilitic arthritis and ankylosis dependent upon gonorrheal infection. In traumatism, the operation is demanded for (1) recent injury; (2) old injury with ankylosis; (3) suppurating arthritis dependent upon traumatism; (4) old unreduced dislocation, and (5) some epiphyseal injury involving the integrity of the joint.

While the writer has repeatedly performed excision for diseased conditions, the discussion of the subject in this paper will be confined to excision of the elbow for traumatism. This operation has been done three times by me in recent traumatisms, all compound and comminuted fractures which, if left alone or treated conservatively, would have resulted in complete ankylosis or a chronic suppurating bone and joint condition. The three operations were primary, that is, they were performed within the first few hours after the injury, and are reported because of their peculiar interest in this discussion on primary injuries to the elbow-joint.

Case 1. B. S., white, flagman, aged twenty-eight, Macon, Dublin and Savannah Railway, in November, 1905, had his right elbow caught in making a coupling, causing a severe comminuted fracture of the joint. There were no external wounds, but extensive swelling and bloody effusion in the parts. He was taken to the Macon Hospital and anesthetized. The writer found that the elbow-joint was crushed, and a Langenbeck incision—a posterior longitudinal incision—was made and the crushed fragments removed. The detached olecranon process was wired to the ulna, drainage provided, an antiseptic dressing employed, and a plaster-of-Paris splint applied, a window being cut for drainage and dressings. The splint was kept on for six weeks and then removed, and passive motion begun and kept up for three months. At the end of that time, limited extension and flexion was possible, but not of any very practical usefulness. The man then disappeared, and it has not been possible to get any history of the final results. The condition of the joint at the time of his disappearance was not encouraging for a completely useful joint. The preserved olecranon process, while it had united, interfered with extension of the forearm, and a fibrous ankylosis of the joint limited the flexion of the new elbow.

Case 2. J. L., negro brakeman, aged twenty-five years, Central of Georgia Railway, on June 18, 1907, had his left elbow caught between the draw-heads of two freight cars in making a coupling between a defective car and another car. The elbow was crushed, causing a compound comminuted fracture of the three bones forming the joint. The soft tissues around the elbow were severely lacerated, but the ulnar nerve and the brachial artery escaped serious injury. The articular surfaces of the humerus, ulna and radius, together with the olecranon process, were ground into small pieces. The patient was taken to the Macon Hospital, and upon examination the writer decided to make an effort

\* Read at the seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.



to save the limb and, if possible, to preserve the usefulness of the arm by establishing an artificial joint. The openings in the soft tissues resulting from the traumatism were enlarged by "the longitudinal curved incision of Ollier" over the head of the radius, and the crushed joint exposed. The various fragments of bones, including the destroyed

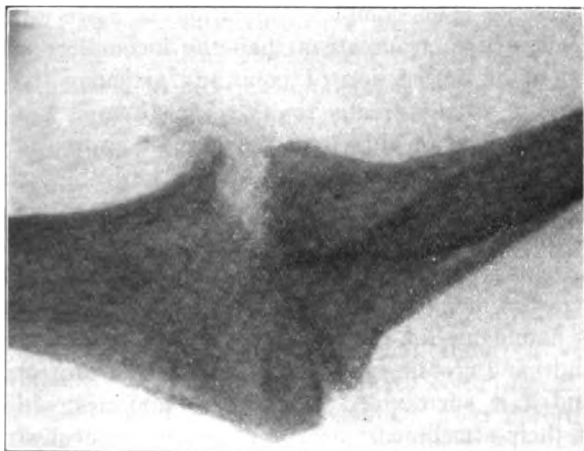


Fig. 1. Case 2. Elbow extended.

olecranon process, were removed. The ends of the three bones were then carefully smoothed off with a small saw and rongeur forceps, care being taken to preserve the attachments of the biceps and brachialis anticus to the ulna in front, and those of the other muscles to the external and internal condyles of the humerus. The tendon of the triceps muscle, with its bony insertion to the olecranon process was anchored with kangaroo tendon to the posterior surface of the ulna just in front of the sawn surface of the stump of the olecranon. Ample drainage by tubes was provided, the crushed soft tissues pared, and the external wound closed with silk-worm gut. A moist boracic acid dressing was placed over the wound, and an anterior cotton-tie splint, bent at an angle of 45 degrees, was applied, with encircling adhesive plaster to the arm and forearm. After the patient was placed in bed, the limb was suspended from the ceiling of the ward by a cord, pulley and weight, so that he could move about with ease, and a continuous drip boracic acid irrigation of the dressings was instituted and kept in constant action for seventy-two hours. At the end of that time the dressing and drainage were removed, the suspension discontinued, the patient allowed to sit up out of bed with the cotton-tie splint in place, and the forearm carried in a sling. After ten days the stitches were removed, the splint taken off, limited passive motion exercised, and the splint reapplied. During the next

five weeks passive motion was used until firm union of the external wound had taken place.

The accompanying x-ray pictures, taken recently, show the condition of the ends of the bones and the amount of extension and flexion of the joint now present, five years after the operation. Pronation and supination are also present, and the man has a useful elbow-joint enabling him to continue in railroad work.

Case 3. C. J., negro laborer, aged thirty, in May, 1908, had his left elbow caught and twisted in the gearing of a planing machine, resulting in a compound comminuted fracture of the joint. He was taken to the hospital and anesthetized. Upon examination it was found that the articular surfaces of the humerus and ulna had been destroyed, while the head of the radius was intact. The joint was opened by the writer, the crushed ends of the humerus up to the condyle, and of the ulna, including the olecranon and styloid processes, were removed, but the head of the radius was preserved. The ends of the bones were rounded off, and the tendons of the biceps and triceps muscles reinserted in front of and behind the new joint on the stump of the ulna with kangaroo tendon. Antiseptic dressings, with ample drainage, were applied, and the limb, put up with a cotton-tie splint bent at an angle of 45 degrees, was suspended for free motion of the patient while in bed. At the

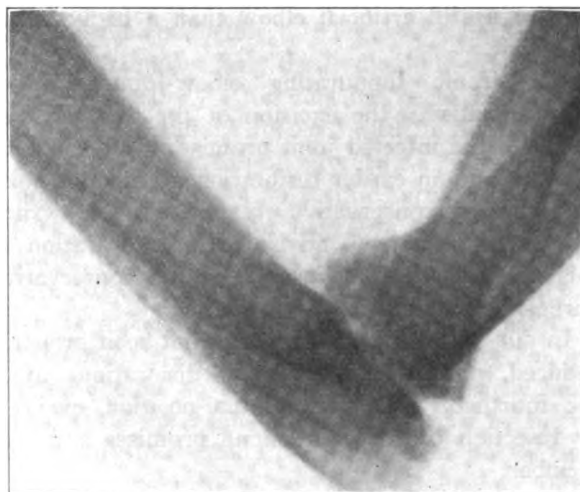


Fig. 2. Case 2. Elbow flexed.

end of seventy-two hours the suspension of the limb was discontinued permanently, the drainage removed, and the cotton-tie splint reapplied. Primary union of all the wounds occurred and passive motion was early instituted. In the process of recovery the preserved head of the radius seemed to interfere with both extension and flexion, and lim-

ited the pronation and supination of the forearm. The end result was fairly good, but the usefulness of the joint was interfered with by the head of the radius.

The man disappeared after several months, and it has been impossible to ascertain the amount of usefulness the limb has retained.

In recent injuries to the elbow, such as comminuted fractures in which there is extensive destruction of the articular ends of the bones, in compound fractures in which there is severe comminution of the bones and exposure of the joint, and in compound dislocations in which it is widely opened, it is the writer's conviction that excision of the elbow should be performed. An attempt at conservative treatment of these cases will usually result in either a badly ankylosed or a chronic suppurating joint, with a possible osteomyelitis of the bones composing it and a subsequent amputation.

In cases of old elbow injuries, either fractures or dislocations, which have recovered with ankylosis at bad angles and useless joints, excision under proper antiseptic methods and systematic after-treatment will give better results than forcible manipulation under anesthetics. The breaking up of vicious adhesions, fibrous or otherwise, under anesthesia, is usually followed by their recurrence and by disappointment to the surgeon and the patient. A conservative and well-planned excision of the injured articulation in these cases would result in a more useful artificial elbow than a badly ankylosed one.

In chronic suppurating elbow-joints following traumatism, the excision of the pyogenic tissues and the infected joint promises a more useful member and an earlier restoration of function than any plan of conservative treatment. The writer would not hesitate to advise such an operation in this condition and believes it to be conservative surgery to perform it.

In old dislocations which have not been properly reduced, particularly backward dislocations after the fourth or fifth week of mal-position, excision or resection of the joint alone promises a useful member.

In certain epiphyseal injuries of the ends of the bones forming the elbow-joint, in which there is much callus formation pressing upon the nerves and blood supply of the limb, or interfering with the complete function of the joint, excision is a conservative operation which should be undertaken. The writer recalls one case in which the operation was advised, but declined by the patient, who later submitted to an amputation above the elbow by another physician, to escape the agony of a nerve injury. A conservative excision in this case would

have resulted in a fairly serviceable joint and relief of the pain from a compressed nerve, and would have avoided a life-time mortification and limitation of usefulness of an amputated arm.

The operation of excision or resection should be complete or incomplete. In the former method all of the articular surfaces are removed; in the latter only part of the articular surfaces require removal. The complete operation is more often demanded in traumatism than the incomplete; the extent of destruction of bone and articular structures is usually greater than it is in disease. Yet in all excisions of this joint the nearest approach to an incomplete operation is always desirable; this is true in traumatisms as well as in disease. The elbow is a comparatively simple joint; it has small articular surfaces which can be readily exposed, the synovial membrane is very simple, the blood supply is abundant, the nerve distribution to the forearm and hand crossing the elbow-joint is well protected, and it is surrounded by powerful muscles which, if their attachments are preserved or carefully replaced after operation, would afford excellent results following a conservative procedure of excision or resection of this joint. Reproduction of bone takes place less completely in the elbow than in other joints, the occurrence of ankylosis following excision is less likely here than in any other location, and a conservatively conducted operation is oftener followed by a useful artificial joint than anywhere else in the body. Yet while this is true, conservation should be observed in this operation. No more than is absolutely necessary of the bony structures of the joint should be sacrificed; as far as possible all of the muscular attachments should be preserved or, when the natural insertions have to be sacrificed, reapplied as near to the original positions as possible; the biceps and triceps particularly should be reinserted by kangaroo tendon to the surface of the ulna, and the muscles inserted into the condyles of the humerus attached at the nearest approach to the normal position as possible. Too much sacrifice of the bones forming the elbow-joint should be carefully avoided, as a flail joint is very apt to follow an injudicious removal of bone and a useless limb result. Ankylosis of the elbow-joint is an awkward and inefficient recovery from injuries of the upper extremity, but a recovery with ankylosis at a useful angle is much to be preferred to a flail joint, following a too extensive removal of bones and a neglect of reinsertion of muscular attachments before completion of the operation.

In injuries about the elbow the surgeon who fails to provide for a useful working joint after recovery fails to do his duty to his patient. If the indications at the time of injury are such as to convince

him that an awkward ankylosed and useless joint will follow, it is his duty to warn the patient of the danger, and if the injury is such that he knows that a stiff joint will result he will be wise to proceed to do an operation that will assure a useful elbow. Conservative complete excision, or a well-planned incomplete resection, is, in all cases of badly injured elbows, better than an ankylosed joint; and for this reason the writer would advise the more frequent employment of this operation, particularly in recent compound comminuted fractures, compound dislocations, and old unreduced dislocations.

The writer wishes to call attention to the use of the cotton-tie splint in the treatment of injuries about the joints, in compound fractures, and in all fractures in which the open method is employed. For seven or eight years he has used this splint under various conditions, and has found it very valuable. It is simply the ordinary cotton-tie, used in baling up cotton, and is applied, after carefully moulding it to the contour of the limb, directly to the surface of the skin by adhesive strips at regular intervals. The ties are light, can be cut at any length, are easily applied and cheaply obtained in our Southern country.

In the writer's emergency bag a number of these cotton-tie strips are carried for emergency use in fractures occurring in railroad accidents.

## THE OPERATIVE TREATMENT OF INJURIES OF THE ELBOW.\*

By S. R. MILLER, M.D., Knoxville, Tenn.

The operative treatment of many injuries of the elbow is imperative. In this emphatic statement I do not include all injuries of this joint. On the other hand, I claim that many elbows treated expectantly and blindly and with bad results would have been greatly benefited by operative measures of proper character, at the proper time.

To determine the nature and extent of many fractures and some dislocations the use of the x-ray is essential. Occasionally a fracture of the olecranon, or other superficial prominences, may be satisfactorily diagnosed without its use. The same may be said of many dislocations of the joint.

The proper interpretation of the x-ray findings is important and sometimes most perplexing. The irregular character of the bones and the inability to define one bone without a portion of another

render a definite diagnosis difficult in numerous instances. If the ray penetration is good and the joint movable, the fluoroscopic examination is of the greatest advantage for the reason that the relations of the bones may be seen in the different positions. The combined use of the fluoroscope and the skia-gram is very satisfactory in many cases. Every fracture or dislocation should be operated upon when satisfactory replacement of bones or fragments, as shown by the x-ray, cannot otherwise be accomplished.

The most advantageous time for operation has not been definitely determined. In former years immediate intervention was practiced in almost all cases operated upon. Now, many of the most progressive operators advocate operation at a later period. The period of election is from seven to ten days. If the injury is a dirty compound fracture or dislocation, immediate measures for cleansing the parts must be resorted to under general anesthesia, and usually all operative work should be completed at that time. In operating, a minimum amount of manipulation should be employed. All dirty and lacerated tissue should be cut away with a sharp knife or scissors, and the curette used as little as possible. Care should be taken to avoid, as far as possible, irritation of the synovial membrane by hands, instruments, sponges, or antiseptics. Free or gauze drainage should not be employed. On the other hand, attention should be given to closing the capsule completely. If necessary, fibrous, muscular, or compact fatty tissue should be transplanted to effect closure. After that has been accomplished the joint should be injected with a two per cent. solution of formalin in glycerine. This injection should be made with an aseptic syringe and needle, after the open wound has been closed, and they should be introduced at a remote point from it. Care should be taken that none of the solution is injected outside of the capsule, while the air should be excluded from the joint. The glycerine should be clean, but not necessarily sterilized, as the formalin will antisepticize it by the end of twenty-four hours, and it should not be used earlier. From 10 to 20 cubic centimeters should be used, according to size of the joint cavity injected. If the synovial membrane has not been opened and a large amount of fluid is present, it should be withdrawn before the injection is made. If an excessive effusion results from injection, it may be aspirated, and if septic symptoms develop after it, aspiration and reinjection should be done.

The synovial membrane is quite vulnerable to infection, and the same is true of the bone up to the

\* Read at the seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

epiphyseal line. The fibrous capsule seems to serve as a barrier to infectious processes, and therefore should be carefully protected and securely closed after operation.

When satisfactory replacement is accomplished by open operative treatment, posture and external dressings and splints may *maintain* the position, but the majority of cases require local support. Absorbable sutures, silver or bronze wire, nails, screws or Lane's plates, may be employed. Each has some advantages and disadvantages. None seems perfect. In the application of any of them, the capsule should not be penetrated. This is important for two reasons: First, it would be opening additional channels for infection in the event the wound is infected. Second, excess of callus or absorption of bone about the fixation material would impair the function of the joint.

Fortunately, true fibrous arthritis seldom follows fractures, but excess of reparative callus may so encroach upon the joint as to cause great pain and impairment of function.

The application of fifty per cent. alcoholic solution of tincture of iodine to the cutaneous surface is probably the best local antiseptic, and this, with the use of sterile rubber gloves and instruments, should minimize the dangers of infection.

Early passive motion should be employed. If flexion, extension, or rotation is limited, persistent exercise of suitable character will often restore almost perfect function.

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## APPENDICITIS AND SOME OF ITS OBSCURE FEATURES IN SURGICAL AND MEDICAL PRACTICE.\*

By J. C. SHAW, A.M., M.D., Holton, Kas.

Probably no subject has received more attention, or been more generally discussed in the past decade, than a condition arising in the right iliac fossa due to the presence of the vestigial remains of a once functioning organ, but which with the advance of civilization, in accordance with the law of use and disuse, and in harmony with the modern idea of evolution, has come to a stage in which it is neither beneficial nor especially detrimental, and in this way it will remain through time to come.

Some one has aptly put it that it is an organ which gives the surgeon an excuse for something to do when the abdomen is open and he cannot

find the cause for which he was looking; he can remove a little, innocent looking, insignificant appendix and lay at its door all the trouble which he cannot explain and all the symptoms for which he cannot account, and thus it has become a great benefactor to the aspiring operator.

However, I would not offer this as a criticism, because I believe it can do no possible harm to scientifically remove an organ which has no physiological or functioning use and which to a certain extent is a constant menace to the individual.

In looking over the history of appendicitis we find that many of the early writers describe a disease which so accurately agrees with appendicitis as to leave no doubt that it was the same as we now find it in our own general work. These cases were thought to be suffering from inflammation of the bowels, and while many got well, just as they do now, yet a very much larger per cent. died.

To quote from one of the older authors, from a book published in 1772, he says: "This inflammation of the intestines is one of the most painful and dangerous diseases that mankind is liable to. It generally proceeds from the same causes as the inflammation of the stomach; to which may be added costiveness, worms, eating unripe fruits or great quantities of nuts, drinking hard, windy malt liquors, as stale bottled beer or ale, sour wine, cider, etc. It may likewise be occasioned by a rupture, by scirrhus tumors of the intestines, or by their opposite sides growing together. The inflammation of the intestines is denominated iliac passion, enteritis, etc., according to the name of the part affected. The symptoms are nearly the same as in the foregoing disease (inflammation of the stomach), only the pain, if possible, is more acute, and is situated lower. Clammy sweats, with a small intermittent pulse, and a total cessation of pain are signs of mortification already begun, and of approaching death."

Thus we see that, in a period so far remote, conditions were recognized and described which convince us that our modern appendicitis was also a disease of earlier times or even of antiquity. We also learn from the same author that the treatment then in vogue will compare very favorably with our own, barring our surgical knowledge and procedure.

The simple non-complicated cases of appendicitis in adults are comparatively easy, both as to diagnosis and as to operation, and will claim no special attention in my paper at this time. The

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\* Read before North East Kansas Medical Society, Oct. 24, 1912.

symptoms in general in these cases are very much alike, and as the treatment is purely surgical this will be passed over now. The non-operative measures vary greatly, but we can reasonably expect much better results in the non-perforated types, or in the non-suppurative or non-gangrenous cases, from some lines of general treatment preparatory to operation than from others. This also applies to the preparatory treatment of those cases seen too late for an early operation, or where this is refused even though the patient is in the early stage of the disease.

In children many of the catarrhal types are not diagnosed and a positive diagnosis may be impossible.

A simple and yet an almost positive sign is a palpable resistance of the right wall of the pelvis when palpated through the rectum.

Just what role the bacillus coli communis plays in the catarrhal, recurrent, non-perforated cases we do not know, but that it is the prime, if not the sole factor, once it gains access to the peritoneal cavity, is beyond dispute. It may, however, be associated with other pyogenic bacteria. The chief primary factor in these cases is the organ itself. The English called the disease perityphlitis from the Greek, signifying inflammation of the peritoneum surrounding the cecum. They claimed that the seat of the trouble was chiefly in the cecum itself, but that later the appendix played a dominant part.

Einhorn, as a result of a study of 18,000 post-mortem examinations, states that perityphlitis is of appendicular origin in 91 per cent. of the cases, and that the remaining 9 per cent. are due to primary perforation of the cecum. Our own surgical experience would assign a higher proportion to the appendicular cases.

The type I especially desire to mention comprises the cases in which there are no signs referable to the right iliac region, and when examined carefully by the physician give little or no evidence of disturbance.

These patients, or at least many of them, complain of gastric disturbance or of chronic indigestion in general. They are nervous and irritable and many times complain of cardiopathies. As a rule they sleep poorly, have headaches, and, if females, nearly always have menstrual disorders. In fact, the large majority of these women suffer from more or less menstrual disturbances. At times they have a normal period, and then for four or five consecutive months experience a recurrence of the appendicular irritation due probably to contiguity of the tissues or a remotely associated nerve supply.

A large proportion of these subjects of chronic appendicitis are chronic dyspeptics. Especially is this true if they are past twenty years of age. They also complain of tired, aching feelings, most likely due to autogenous toxins.

The results of indigestion, fermentation, putrefaction, and decomposition will most likely be accompanied by the absorption of toxic material from the whole alimentary canal. In the same way toxic substances are absorbed from the appendix itself. The fact that the digestion will become more and more impaired and that through this impairment the patient is more susceptible to intercurrent diseases lessens his immunity and increases his susceptibility.

These individuals soon become unfit to attend to the ordinary affairs of business, and if in the employment of another, will soon lose their positions.

We must look for the association with or the relation of a chronically irritated appendix to remote conditions as a sequel, such as disturbance of the stomach, and resulting irritability of the heart, chronic indigestion, headaches, auto-toxemia, and also the pelvic disturbances which occur with such regularity in many women.

Constipation is not always the rule in these cases, and there may be at times troublesome diarrhea.

Then we may think of tubercular peritonitis, and it may be quite well to do so, as an obscure case of this condition may simulate one equally so of appendicitis.

In all these cases when every effort has been made to ascertain the cause, exploratory incision will do no harm and may be a means of ascertaining the trouble and through this permit of a permanent cure.

#### SUMMARY.

1. The affection we now call appendicitis was also a disease of antiquity.
2. The chief cause of appendicitis is the appendix itself.
3. The simple uncomplicated cases are comparatively easy both as to diagnosis and operation.
4. The treatment of non-operative cases differs, and better results are to be expected under some lines than others.
5. Many cases of appendicitis do not present classical symptoms, but give rise to remote disturbances which will lead the physician to believe that they are due to something else.
6. Operation will do no harm in these cases and may be of great and lasting benefit.

**TREATMENT OF BURNS.\***

By R. J. GRIFFIN, M.D., Moundville, Ala.

Having recently had under my observation and treatment a few cases of very severe burns, and realizing their frequent occurrence in railway accidents and the close relation they bear to railway surgery; and having seen very forcefully the deleterious effect of extensive burns on the kidney, I thought I would endeavor to warn my brother physicians against this dangerous complication or sequela.

What I shall say will be intensely practical and along the line of my personal observation.

In the treatment of burns, and especially very extensive ones of the third degree, you have first to overcome shock. (You will note that for the sake of brevity I mention only three degrees of burns, first, second and third, including in the third all that destroy the true skin and are not included in those of the second degree.)

Then you will have three indications for local treatment—the relief of pain, protection of the injured but living tissues, and the drainage of any pus pockets that may later form under the sloughs.

In regard to shock its definition is not definite, since the factors concerned in its causation are not altogether understood. We know it to be a condition of depression. Physiologists teach that there are two kinds of shock, vasomotor and cardiac. They regard it as primarily a nervous condition. They tell us that shock is that phenomenon of depression or suppression of nervous functions which follows mechanical injury along the course of nerves. Pathologists tell us that post-mortem examinations are negative, either macroscopically or microscopically, but their investigations reveal much blood in the large abdominal veins and splanchnic system. In extensive burns the shock is intense, due to severe pain and the effect on the nervous system. The patient is found to present a clinical picture somewhat ghastly in appearance, seems dull and stupid, and not delirious, quiet—not nervous; the skin and mucous membranes are pale; the skin cold and clammy; the temperature subnormal, the reflexes diminished or absent; respiration shallow; the pulse rapid and small, and the sphygmomanometer always registers a diminished blood pressure.

*Treatment.* The treatment of shock in cases of burns is similar to that in other conditions. We know that a great many patients die from shock in very extensive burns, especially where it lasts

from twenty-four to forty-eight hours. Realizing that you have to deal with an inward flow of blood to the large abdominal veins, you must by all means apply *heat* externally to all parts of the body, as by hot water bottles, etc. You should give cardiac stimulants, and gradually raise the blood pressure and sustain the heart action. In these cases I favor good-sized doses of morphin and atropin, given hypodermatically, both for their stimulating effect and to relieve pain. Adrenalin chloride, in 10-drop doses of the 1 to 1000 solution, hypodermatically, strychnia, nitroglycerine and camphor are beneficial in large doses, but not often repeated. What we desire, is to raise the blood pressure and maintain it; but by all means avoid overstimulation.

Now, when you have succeeded in tiding your patient over the shock which you can see by the gradual rise in temperature and slowly returning normal pulse, color, respiration, etc., your troubles and his are just beginning. If the case is only one of a burn of the first degree, the treatment consists principally in the relief of pain, which you can generally accomplish with a weak non-alcoholic solution of picric acid of the strength of one-half to one grain to the ounce of water. A few applications of this and possibly a little cold cream or carbolyzed vaseline and your patient is well.

If the burn is of the second degree and much of the epidermis is destroyed, there will be blisters, either full of serum or collapsed, some oozing of serum and possibly of blood. In these cases the pain is severe, and repair is much slower, but no slough of the true skin occurs; therefore, there is no permanent scar; redness may, however, persist for a month or more.

The treatment of burns of the second degree is chiefly to relieve pain and prevent infection. The various writers give us four methods of treatment: First, to apply a dressing soaked with oil or spread with ointment in order to protect the injured surface from air and changes in temperature. Second, to cover the burn with strips of rubber tissue or gauze wet with normal saline solution. Third, to apply antiseptic dressings which may be allowed to dry or may be kept moist. Fourth, to leave the affected area exposed to the air in order that it may dry up.

I think it depends upon the condition of the burn as to which plan of dressing is best. If there is a tendency to marked sloughing and watery secretions, I think the dry open air dressing preferable. I like first to wash the parts in a warm normal salt solution, or if there is much pus I use a weak solution of peroxide of hydrogen in normal saline;

\* Read at the seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

then dust on an antiseptic powder. I use subnitrate of bismuth, one part, and powdered charcoal, 10 parts, as a dusting powder and leave the burn open to the air. Protection against infection depends upon the vitality of the remaining skin rather than upon the antiseptic qualities of the dressing; therefore the powder should be soothing to the skin, rather than destructive to the bacteria.

Picric acid solutions are recommended in the treatment of burns of the second degree (in fact, by some in all degrees of burns). They are used both to relieve pain and as an antiseptic, also to dry up the parts, but, in my own experience, I find them very painful in some cases, while soothing in others.

This brings us to burns of the third degree, and in this class I have included all the deeper burns. In most of these, when extensive, you will find areas where the burn is of the first and second degrees; you can easily be misled by the early appearance of the skin. If the vitality of the corium is destroyed, the blood can not circulate through its vessels and the skin will therefore appear white. The difference between this and normal skin is easily recognized if one looks for changes in color when pressure is made upon it. Such changes will always be absent in dead skin, and furthermore this dead area will always be surrounded by a hyperemic zone in which the burn is only of the second degree; all of this white area will in time slough, and the deeper the burn, the longer the time, as a rule, required for it to slough. In some instances it requires two weeks or even longer.

Sloughs should be cut away as soon as possible after they become loose, but not before. In large areas incisions should be made in the central portions of the slough to permit of free escape of pus and secretions. The repair after a burn of the first or second degree is accomplished by a normal growth of epidermis, but in every burn of the third degree the removal of the slough is accomplished by the growth of granulations beneath them. These granulating areas must be covered by the *lateral* growth of the epithelial cells, either from the edge of uninjured skin, or from islands of epithelium which have been left, or from the epithelium which lines the sebaceous and sweat glands. Thus you see the process of making new skin is very slow; an epithelial edge will grow about one-eighth of an inch a week. All very large surfaces after the removal of all sloughs, if there is a healthy granulating area, should be skin-grafted; but this operation will not be discussed in my paper. Frequent changes of dressings are to be avoided, but if they become saturated with pus and serum, the comfort of the patient is usually promoted by changing them.

Support your patients with the best of foods and fresh air, and make them as comfortable as possible. Here is where your soothing antiseptic powders and open air dressings are most suitable, for it will require *months* for large surfaces, healing only from the edges, to become covered with healthy epithelium.

Always be on the alert for symptoms of infection. The kidney is the main organ to suffer from extensive burns, and I regard this sequela or complication as almost always fatal. Watch for a low specific gravity of the urine and make frequent tests for albumen. I think it a good plan to give twice a week small doses of the mild chloride of mercury, and follow this with salines, also urotropine twice daily as a prophylactic, and help the kidneys to throw off as much solids as possible.

I remember painfully, and to my great sorrow, that on last Thanksgiving Day, November 30th, my own son, six years and three months old, was burned over one-half of his body and legs; nearly all in the third degree and deeper. The shock lasted almost forty-eight hours; some of the sloughs required two weeks to become detached. A great many of my medical friends came to my assistance and offered every suggestion possible, but none could offer a favorable prognosis; however, he lingered for over two months, improving gradually so far as the burn was concerned. Epithelium was growing rapidly on all edges, and his appetite and strength were remarkable, until finally his kidneys began to show the effects of the poison. His urine became loaded with albumen, the specific gravity fell as low as 1003 or 1004, and there was great diminution in the quantity of urine, until finally for five days prior to his death he did not void any at all. In my mind there is no doubt but my son would have recovered, although such an extensive area was involved, had it not been for the involvement of his kidneys.

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The practice of covering a patient's face with a towel after operation, while he, still unconscious, is being taken on a stretcher to his room is to be condemned. So is anesthetizing a man in a poorly illuminated room. It is risky to send the etherizer away from an unconscious patient to begin anesthetizing another case, unless some attentive and experienced assistant is specifically notified to watch the patient's gradual recovery from anesthesia. I have seen a patient vomit under such circumstances, when no attendant was close at hand to see that asphyxia did not occur.—*Dr. J. B. Roberts (Therap. Gaz.)*



**AN IMPROVED METHOD OF TREATING  
LEG ULCERS.\***

By G. A. NEUFFER, M.D., Abbeville, S. C.

It is not my intention to go into the pathology or causation of ulcers of the leg, but simply to describe to you a method of treating and curing them which has several advantages over any other and has been universally successful in my hands, affording me great satisfaction in the management of a very troublesome condition and giving my patients comfort and relief. The procedure is as follows: With warm water, some form of liquid antiseptic soap, and an ordinary surgical brush, scrub the leg thoroughly. Be sure to rub the brush over the surface of the ulcer as long as the patient will permit or until it begins to bleed; then rinse the leg off with a warm 1 to 1,000 aqueous carbolic acid solution. After drying the leg and the ulcerated area, apply to the ulcers a 60 grain to the ounce solution of nitrate of silver, using just enough of this solution to make them turn white. Next cover the ulcer or ulcers, if there be more than one, with a smooth pad of sterilized gauze, say about six thicknesses. Now with a flat three or four inch paint brush cover the leg from the base of the toes up to the knee with a good coating of Unna's paste, being sure to thoroughly apply it over the gauze pad as well as over the rest of the limb. Over this apply a gauze bandage, preferably a three-inch one, then another coat of the paste, and bring the bandage down from the knee back to the base of the toes. This usually completes the application, but if for any reason you wish a heavier cast, the painting and bandaging can be continued until the desired thickness is secured.

The question comes up as to how often this treatment is to be repeated. There are two conditions which should guide you on this point—the comfort of the patient and the amount of oozing through the bandage; usually once a week or once every ten days is often enough. However, should the leg become painful or uncomfortable, or the discharge through the dressing excessive, you must make the application oftener. The judgment of the surgeon and the temperament of the patient must govern, but the longer you can make the intervals the quicker and the better results you will obtain.

After the ulcers are cured, an elastic stocking must, of course, be worn to prevent a return.

The greatest advantage this treatment offers is that rest in the recumbent position is not at all necessary; the patient comes to your office to have his leg dressed, and goes on with his regular work as usual; the only time lost is that which he spends in having the application made. Another advantage is the long intervals between treatments, the patient in the meantime experiencing no discomfort from his leg.

Usually about eight weeks is required to effect a cure.

In removing the cast preparatory to re-applying, it can be cut through from bottom to top with a pair of scissors and then pulled off.

Now, in conclusion, a word about Unna's dressing. It is all important that this be properly made in the first place, and properly applied. The formula for Unna's paste can be found in the thirteenth edition of Hare's Practical Therapeutics, page 489, and is as follows: Gelatin, 4 parts; water, 10 parts; glycerin, 10 parts; zinc oxide, 4 parts. The gelatin and cold water are put in a basin over a fire and a solution made, then the glycerin and zinc oxide are added with constant stirring. After the mixture is complete it is poured into a can and allowed to cool, when it is ready for use.

When cool the dressing is solid. When using it, it must be heated until every particle in the vessel is melted; then allow it to cool to the point where it will not burn the patient, and apply quickly.

**DISLOCATION OF THE ANKLE.\***

By C. D. O'HARA, M.D., Williamstown, Ky.

Considering the subject of dislocations in general as they ordinarily present themselves to the railway surgeon, and thinking of those most generally discussed in society papers and monographs, it very soon occurred to me that the ankle had been curiously neglected. A hurried review of the list of bone and joint lesions reveals that the treatment is fraught with the greatest concern, demands an exhibition of the most direct and minute knowledge of the part, its surroundings and relations, and is of the most momentous importance to patient, surgeon and company, so that I cannot disabuse my mind of the opinion that the ankle ranks second to none except, perhaps, the elbow. While theoretically its motions

\* Read at annual meeting of Association of Surgeons of Seaboard Air Line, Tampa, Fla., Oct. 30-31, 1912.

\* Read at seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

are limited to those of a ginglymus joint, practically it is capable of more movements, supported and assisted as they are by the beautiful, though intricate, ligamentous arrangement and the peculiar, though efficient, articulation of the bones, than any other joint. Add to this the distinctive lameness certain to result from the least failure in treatment, the diminished usefulness of the entire limb of which it is a part, and the ease with which any shortcomings are observed, explained and comprehended by the public, and we have, I think, reasons sufficient to regard the ankle in its injured state with quite a degree of respect.

In years past, among railway employees, injuries of the hands were far the more frequent. Improved methods of coupling and the relegation of the old "deadwood car" has improved conditions for the safety of these members. However, accidents are always occurring or threatening, and so long as this is the case, the place of least danger will always be just where one is not, and until human impulsiveness is entirely eradicated men will continue to vault from seeming to presumed safety, possessed of a vague idea that it is wise to sacrifice a part and save the whole. This is one reason for ankle dislocations. Then, too, railway operatives have a penchant for using their feet in perilous places and for absurd purposes; the dangers to the pedal extremities when dismounting from fast moving cars are increasing, due as much to temerity perhaps as misfortune. As a consequence of the above, ankles will continue to be dislocated and the foot to be forced from its normal position.

If we see a case before the swelling and tumefaction have become very marked, and while the shock from the trauma is holding the pain in abeyance, the diagnosis of the dislocation and its variety is made with little difficulty, but as the surgeon usually arrives some time after the injury the unravelling of the case is not always easily accomplished. It becomes a matter of serious importance, requiring skill, time, and a thorough and painstaking comparison of the ankle with its fellow of the opposite side, or in case of involvement of both with another uninjured joint.

For working purposes the lateral dislocations may be dismissed, as they rarely or never occur except with fracture of the fibula or tibia, and, if the violence is very great, of both bones. This leaves the forward or backward dislocations of the astragalus from the bones of the leg, or the forward or backward dislocations of the astragalus from the scaphoid, cuboid and calcaneum, an

injury which, while not exactly of the ankle-joint, yet is of a very great importance in arriving at a diagnosis by exclusion.

When we consider the conformation of the astragalus and the way it fits between the bones of the leg above and rests as in a cradle upon the os calcis below, and how it is yoked in front to scaphoid bone, it seems impossible that it could be thrown from its position. From its greater width in front, its strong lateral ligaments, and the stronger tendons of overlying muscles it would appear to be absolutely secured. But strong plantar flexion or over-extension and the continued action of a propelling force drive it either backward or forward, causing its displacement. Such injuries may and do occur without any fracture or tearing; indeed the astragalus alone may be forced out of its socket into the foot. Dislocation forward is most rare and is more generally attended by fracture, but whether forward or backward the entire ankle-joint is involved, so that it is of as much importance as dislocations of the leg bones from the foot. These cases are generally very painful, show great deformity, may be attended with an enormous amount of edema, and often escape diagnosis, being consigned to that graveyard of foot disorders, sprained-ankle. Especially is this true of the backward variety, for then there is no inversion or eversion, no shortening, and the parts are so swollen that the position of the bone is impossible to determine. In extreme cases one malleolus is depressed, the other prominent, the sole of the foot turned up and absolutely motionless. Backward dislocations are infrequent, and are usually complicated by the bone being caught in the tibial tendons, some one of which may interpose itself in such a way as to render reduction mechanically impossible. When the bone is thrown far back under cover of the Achilles tendon, the shortness of the head of the astragalus renders it almost impossible to apply any forward force and the probability of bringing about a reduction is greatly diminished, so that excision is usually resorted to. However, in such cases one may with prudence and safety adopt the most conservative course, as a foot in such condition in time may regain a great deal of strength, more or less mobility, and an appearance quite similar to the unaffected joint.

The method of restoring the parts to their normal relation as well as the manipulations in examination should be carried on under anesthesia. Muscular resistance should be as completely over-

come as in a capital operation; the pain is so intense that the least motion made causes a spasmodic contraction that completely masks the condition and position of the parts. Reduction when possible is best made by having an assistant grasp the thigh just above the knee, holding it securely but not too firmly, the operator making traction from the knee as a fixed point, the thumb and fingers exerting lateral pressure and carrying on the manipulations. A great amount of traction is seldom necessary and ropes, half hitches, and similar devices are rarely required. The retracing of Nature's motions in producing the injury is our guide, and the middle fasciculus of the posterior ligament, which is never torn in either forward or backward displacements, is our great aid. If by our manipulations we can get this strong band on the stretch and then apply proper traction, the reduction is soon accomplished. Cases of complete displacement of the astragalus, with the sole carried straight up the leg, the joint increased threefold in breadth, the osseous structures obscured by swelling, and the deformity resulting almost horrifying, can, by patience, a little force and skillful manipulation, be soon corrected. Such manipulations are useless unless the patient is thoroughly relaxed.

The selection of a dressing to be used is an optional matter. Here as elsewhere in luxations, get the parts in proper position and keep them so. In fact the lightest dressing possible is the most desirable, and the one so constructed as to most conveniently allow you to expose and inspect the joint is the safest. Once the reduction is completed nothing short of repeated violence will cause the displacement to recur. Of far greater importance than the dressing used is the early application of passive motion and the continued use of passive motion. A let-alone policy in ankle-joint dislocations can never be justified nor too roundly denounced. When we think of the complicated construction of this joint and of the tendons working through grooves of bone, we may safely presume that pseudo-ankylosis and ankylosis will be the rule rather than the exception, while the strong lateral and antero-posterior ligaments between the leg bones and astragalus and between the ankle and bones of the tarsus will at times undergo changes that render them immovable as bone itself. The first attempts at movements should be made under the supervision of the surgeon, or better still by him, and it is well to have the patient constantly un-

der observation until all possibility of lost or impeded motion has disappeared.

In conclusion I would say that enlarged, tender, deformed, motionless ankle-joints, even though the function of the foot is practically unchanged, furnish splendid material for the malingerer and the legal fraternity, besides at times placing the expert witness in a most ticklish position in trying to explain why such an ankle is as good as ever even though he knows it to be true.

### **REPORT OF A CASE OF COMPOUND DIS- LOCATED ANKLE.\***

By R. J. NOBLE, M.D., Selma, N. C.

On Sunday afternoon, December 10, 1911, I was called to see N. H., eleven years old, who had been injured while running and jumping with other boys into a ditch some twelve feet wide and eight feet deep. His right foot struck a harder place than it had before and turned, dislocating his ankle. The ends of the tibia and fibula were forced through the muscles and skin on the outer side and stuck in the mud of the ditch, causing a compound dislocation of the ankle-joint with fracture of the internal malleolus. The muscles and skin were cut as clean as if done with a knife. The tibia and fibula protruded through the skin for at least two inches and appeared as clean as if they had been scraped. The foot was turned up and was lying at the side of his leg, with the sole upward. Of course there was infection.

After cleaning the tibia and fibula as well as the wound with a 1-1000 bichloride solution, I reduced the dislocation easily. Dressings wet with the bichloride solution were applied to the wound and the foot and leg put in an open plaster cast, reinforced with a piece of hoop iron on each side at the top of the cast. The next day a window was cut in the cast, the dressings removed and replaced with others wet with a solution of fluid extract of echinacea, one to four of water.

On the fifth day I gave a hypodermic of anti-tetanic serum. There being a discharge of pus, peroxide of hydrogen was freely used, and the solution of fluid extract of echinacea continued. The stitches sloughed out, and all around the wound were purple blebs and small abscesses. A fresh plaster cast was applied every three or four days, because there was so much pus that it was impossible to keep it on longer. The casts were easily removed and as easily applied.

\* Read at the seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

After the third week there was constant improvement and the little fellow was discharged on January 25, 1912, just forty-five days from the date of injury. I kept the cast on at night after he went without it during the day, for at least a week. He walked a mile without a crutch or stick on Easter Monday with the school children. Now he goes where he will with scarcely a limp. There is a slight inversion of his foot, somewhat like that of some parrot-toed boys. It gives me great pleasure to see the little fellow, who is named after me, playing as other boys, happy and proud of his foot; and it repays me well for all the trouble I had with him, when in passing he looks up with a bright and happy smile, and says: "Doctor, I am all right now."

### INJURIES TO THE ELBOW-JOINT.\*

By H. W. BLAIR, M.D., Sheffield, Ala.

This subject is not of my own selection, but by request of the secretary of this association. My first impulse was to decline, and doubtless, when I have finished, the majority of you will decide it would have been far more appropriate for me to have done so.

I always treat injuries of the elbow with many misgivings. This does not apply to the milder injuries, but to fractures of the bones in this region. Sprains and dislocations with proper treatment are always relieved in time; necessity to use the limb steps in and completes the task for you, and the final result of the accident is satisfactory if you will only encourage your patient to go to work, and plead for a little time. But it is a fracture that tries the skill of the surgeon to thwart the efforts of the hungry lawyer and the susceptible injured person to make somebody pay for an arm that he can readily show you is not in exactly the same condition or shape as the other one that has not been injured.

The distal end of the humerus and the olecranon process of the ulna are the most common seats of fracture. The lower end of the humerus, on account of the flattened laminated condition of the bone, broader by far than the shaft to accommodate the radius and ulna below, forms a hinge joint sufficiently strong for the usual demands, but ill prepared to withstand violence of direct or indirect origin. The serrated condition of the lower extremity of the humerus and the depression in which

the olecranon process rests when the arm is extended, render a splitting of this part of the bone a usual result of accident. And still more common in my practice has been a splitting off of the external condyle against which the head of the radius rests, and the radius, as we know, supports at its distal end almost the entire hand. A violent fall or blow against the hand with the arm wholly or partly extended is a common cause for the chipping off of the external condyle.

It is very difficult to place in proper position these fragments of bone and to retain them there while the dressings are being applied, and continue to hold them until bony union is complete.

I always attempt to replace these bones as perfectly as possible, with my mind riveted on the anatomy of the parts, and hold them in such position while the plaster is being applied, and continue my vigilance while awaiting the setting or hardening process.

I invariably remove the dressings at the end of six weeks and find more or less deformity. The stiffness of the joint is relieved by passive motion and the kindly influences of use and time, and the usefulness of the arm is finally unimpaired.

But there is not a surgeon connected with the Southern R. R. who is content and satisfied with the result of an injury if in appearance the limb is not as it was originally. Bones should be of the same length and shape as they were before they were fractured. Deformities are not countenanced, and scars should be the least observable possible.

I have never been satisfied with my treatment of fractures near the elbow-joint (and from the standpoint of the railroad surgeon this subject resolves itself into fractures at this point).

The x-ray is a great and almost indispensable aid in diagnosing these injuries, and should be used in all cases when available. And when the conditions that exist are thoroughly understood, I believe the proper way to treat these fractures is under aseptic conditions to cut down on the broken bones and carefully nail together the fragments in perfect position. The bones at this point are very accessible, the important tissues easily avoided, and then the dressings are of secondary importance.

The smallest fragments should be tacked back in their former position. Under this treatment the usual slight deformities would be improbable, and in careful, skilled hands impossible.

The olecranon process can be securely nailed back in perfect position, the ligamentous union, which is so common, obviated, and the unsatisfac-

\* Read at the seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.

tory attempt of drawing the bones together with a bandage avoided.

Murphy of Chicago has utilized this principle in a bold and useful way, and the good work of this genius will spread throughout the land.

The nail is far superior in every way to the wire suture in repairing bones; one's common-sense would naturally teach that, for it renders the parts more stable, which is the most important factor in perfect bony union.

The time is not far distant when the good surgeon will add the hammer and nails of various sizes, with drills to suit, to his armamentarium of the regulation splints, plaster and bandages when he goes forth to treat solutions of continuity of bones, and especially will he find the hammer and nails useful in the treatment of fractures near the elbow-joint.

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## Surgical Gleanings

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**A New Sign of Fracture of the Lower End of the Humerus.**—Dr. E. Kirmisson (*Bul. de l'Acad. de Med.*, No. 60, 1912) calls attention to the fact that in fractures of the lower end of the humerus, which are particularly frequent in children, it is often difficult to differentiate between the supracondylar fracture and an anterior luxation of the elbow-joint. Besides the ordinary signs, a characteristic feature of supracondylar fracture of the humerus with forward displacement of the upper end is a transverse ecchymosis in the fold of the elbow which is caused by the pressure and contusion of the tissues at the upper margin of the lower fragment. Where the injury has been caused by severe force the fragment may perforate the skin. The ecchymosis runs in a transverse line, as if inflicted by a blow with a thin object, but later becomes more diffuse. The transverse course of the ecchymosis is absent in luxations because the effusion of blood in the latter is more diffuse. As it is a constant phenomenon in supracondylar fracture of the humerus, it is therefore of importance in the diagnosis.

**The Combined Internal and External Treatment of Cancer.**—Dr. A. Zeller (*Munch. med. Wochens.*, No. 34, 1912) describes a non-operative method of treating cancer which he has employed for about seventeen years. This first consisted in the administration of silicic acid, one grain three times daily. The results in the nine cases treated in this way were not convincing, since the microscopic diagnosis was lacking, although the symptoms otherwise pointed strongly to cancer. In view of the marked influence apparently exerted by salicic acid and the encouraging results of treatment, Zeller was afforded an opportunity of further

investigating his method in the Samaritan Hospital of Heidelberg under the direction of Professor Czerny. Of the 25 cases treated, 15 received subcutaneous injections of silicic acid ester, 5 took solutions of potassium and sodium silicate internally, and the other 5 were treated both by injections and internal administration of the silicates. Although no complete cure was obtained, an arrest of growth or a diminution in the size of the cancer was generally observed. From his experience Zeller concludes that the silicates may produce a reduction in size or even a cure in cases of small tumors which have not yet undergone necrosis. Since November, 1910, he has experimented with a combined method, consisting of the internal administration of the silicates and the external application of an arsenical mercury paste. In this way he has treated 57 cases with 44 cures; the majority of these comprised external cancers, the method being as follows: The tumor and its surroundings are first cleansed with pledgets of cotton soaked in benzine; then the paste spread on linen is applied in a thick layer to the growth and its surroundings. When the paste has dried a covering of collodion is applied in the case of small tumors, while in larger and ulcerated cancers a dressing of gauze and cotton is employed. After eight to fourteen days the procedure is repeated. Simultaneously 8 grains of a silicate are administered three times daily. When a cure has resulted, the silicates are continued for another year. The paste is said to have an intense destructive action upon the tumor, followed by rapid granulation and healing.

**Treatment of Inoperable Cancer with Mesothorium.**—According to Pinkuss (*Deut. med. Wochens.*, No. 38, 1912) mesothorium enclosed in a capsule is a more convenient agent than the x-ray in many cases of cancer. Its effect, however, is equally superficial, as the rays have very little penetrating power. Its use is particularly indicated in gynecological practice where it sometimes causes marked improvement in cases of inoperable cancer. It is often advantageous to supplement its employment by the internal administration of thorium, which may be used subcutaneously or intravenously or directly injected into the tumor.

**Roentgen Diagnosis of Extrauterine Pregnancy.**—Dr. Zurhelle (*Zentbl. f. Gynäk.*, No. 26, 1912) reports a case of extrauterine pregnancy in the later months with a dead fetus in which the diagnosis was confirmed by the x-ray. The woman, a IV-para, 41 years old, had suffered with irregular hemorrhages and violent attacks of pain, with an increase in the size of the abdomen. Roentgen ray examination clearly showed the bones of the child, especially the skull, sacrum, ribs, and extremities. There were a number of patch-like shadows in the radiograph which seemed to be due to the presence of a large amount of lime salts in the placenta. The patient was operated on with recovery.

PUBLISHED

BY THE

**International Journal of Surgery Co.****FRANK S. LEWIS, M.D., Managing Editor.**100 William St.—Woodbridge Building.  
NEW YORK, N. Y., U. S. A.

To whom all communications intended for the Editor, original contributions, exchanges, books for review, as well as communications relating to the business of the Journal, should be addressed.

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**Editorial Department**

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**NEW YORK, NOVEMBER, 1912**

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**THE RECENT CLINICAL CONGRESS OF SURGEONS.**

The Clinical Congress of Surgeons, which has just been held in New York, has undoubtedly made surgical history. Never before have so many surgeons in active practice met and exchanged ideas and views, and surely the result must be of lasting benefit to all concerned. Fully 2,600 active practitioners registered and partook of the benefits afforded by the Congress, a number unsurpassed in the history of surgery anywhere in the world.

Several features of this unusual gathering stand out pre-eminent among many others. In the first place, the proceedings were almost entirely clinical in character, except for the evening meetings at which a limited number of excellent papers were read. Exact figures are not at hand, at this moment, but it is estimated that from eight hundred to a thousand surgical operations were performed at the various clinics during each day of the Congress. Such an amount of clinical work is almost beyond comprehension, and in few cities anywhere in the world, with the exception, perhaps, of Vienna, Paris or London, could such an exhibition be given.

Not alone was this large amount of surgical work done, but it was the consensus of opinion that it was extremely well done. The surgeons of New

York gave ample evidence—if such testimony were required—of the right of New York to be placed at the head of medical and surgical possibilities among the cities of this country, and they have placed their city in the very first rank as a surgical center. Somehow, the impression has grown and continued to grow, to the effect that New York with its enormous clinical material, was not taking proper advantage of this material. Smaller cities, notably Philadelphia and Baltimore, have disputed this supremacy with their greatest sister and there was none to say them nay. The Clinical Congress, however, has demonstrated that New York can easily become, if it is not already such, the greatest medical and surgical center in this country, and can compare favorably with Vienna, Paris and London. It is true New York has almost been persuaded to accept the view of its sister cities that it does not occupy the enviable position which is hers of right; lack of organization, lack of co-operation, lack of that "boosting" which is so characteristic of the smaller cities, all of these have helped to bring about this condition of affairs. But the Clinical Congress has at least served this great purpose of demonstrating to New York what New York can do in the matter of surgical teaching. This great city has at last awakened to its vast possibilities, and it is quite certain that this awakening will not be ephemeral in character. New York cannot afford to accept second place to any of her sisters in this matter. She has the men, she has the facilities, and she has the material. Co-operation and intelligent effort, properly directed, must in a short time reveal New York in its true picture, a picture made possible by this Congress, as one of the greatest medical and surgical centers in the world.

If a word of criticism of this stupendous success is pardonable, something must be said of the publicity bureau of the Congress. That it has done its work well cannot be denied; it deserves great credit for the character and quantity of its work. There is, however, one feature which has met with considerable criticism—the newspaper publicity. Sentiment has changed materially in regard to the matter of newspaper publicity, and it is no longer considered a violation of the code of ethics for a medical man to be interviewed on important medical matters nor for his name to be mentioned in connection with the treatment of a distinguished patient. With reference to the Congress, however, it seems to have been the policy of those in charge of publicity to give undue prominence to some of

the operators to the absolute exclusion of others who were doing equally good work. Dr. Brewer, in his opening address, announced very properly, that the surgeons in charge of the clinics would demonstrate the usual surgical procedures, and that the visitors to the clinics were not to expect anything spectacular or astounding. It must appear to all that this is the correct picture to paint of a gathering of serious men bent on the study of the everyday problems of their profession. Nevertheless, the fact cannot be ignored, that the newspapers did not make mention of the fine work of the hundreds of surgeons who were performing the task that comes to them day in and day out, but gave up much space to the spectacular operations which very few, if any, of the visitors would ever be called upon to do. In the midst of so much clinical work—something like five thousand surgical operations in one week—it is but natural that the visitors should be attracted to the unusual and the spectacular, thereby slighting, unintentionally no doubt, the vast number of operations with which they ought to become more familiar.

The professional world is made up of students and teachers. The teachers are in the vast minority. Practically all of those who came to the Congress must be assigned to the student class, because they were there to perfect themselves in their daily work by studying the methods of the masters in this great city. To divert these men from their most important work by offering them the distractions of spectacular operations may be very interesting, but it does not serve the primary purpose for which the Congress was established. On the other hand, from the standpoint of the operator whose work was permitted to go by unnoticed, even though it be of a high order, it must be conceded that he was put to a decided disadvantage. The visitor, and the public, too, for that matter, were given the impression that the purpose of the Congress was to exploit the marvelous things that a few surgeons did, rather than the high quality of the work done by all the men on the program of the day. If the general public was to be made aware of the work being done by the various hospitals and clinics, it was just as important to announce that Dr. Smith did an operation for an ingrowing toe-nail, and did it well, as to give an undue amount of space to Dr. Jones who trephined a skull and removed from the victim's brain the crime center. From the standpoint of the Congress, both operations deserved the same publicity; it was for the visitors to choose which they preferred to see,

and it was for the public to admire the skill of both surgeons. But to marvel at the one and ignore the other completely does not seem to be productive of the results for which the fathers of the Congress had hoped. To have published every day the complete program of the various clinics, without emphasizing one portion as against the other, would have placed the work of the Congress on a sound, conservative basis, with an utter absence of the spectacular on the one hand, and a widespread knowledge of the immense amount of fine work done in the New York hospitals, on the other.

This is certainly but a single detail in a wonderfully successful undertaking, one which deserves all the success that can possibly come to human endeavor. It is to be hoped, however, that in future the aim will be made to give equal prominence to all portions of the clinical work, so as to eliminate the impression that nothing but the spectacular is worth while.

Dr. Franklin H. Martin and his associates deserve the heartiest congratulations and thanks for the splendid results accomplished. Let us hope that their future efforts will be crowned with equal, if not greater, success.

ABR. L. WOLBARST, M.D.

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### **THE NEW TREATMENT OF PRURITUS ANI.**

Murray's work on pruritus ani, as recorded in the August and September numbers of this journal, is worthy of a few words of mention. In these days of vaccine prophylaxis and therapy, few conditions remain where a germ has not been found amenable to attack by his dead brethren. And now pruritus is claimed to stand ready to join its more famous distant relatives, typhoid, meningitis, acne, furunculosis, etc. And why not? Perhaps, though not notorious as a taker of life, pruritus is a condition that has caused untold suffering, and strangely enough, has resisted all forms of treatment, notwithstanding the frequent reports of discoveries of "sure cures," and great have been the harvests reaped by the quack, simply because the practitioner has been unable to achieve results.

Dr. Murray's theory concerning the etiology of pruritus ani is entirely new. Hitherto the general belief has been that this condition is caused by local rectal or anal disease, or else is an evidence of a general disturbance. True, the late Sir Frederick Wallis claimed to have found a small ulcer as the con-



stant cause, and Ball regarded it as an irritation in the nerve endings; both must have been wrong or there would not to-day be a basis for the new coccigenous theory of Murray. He may be in error as much as previous investigators. The fact that he has found the streptococcus in ninety-four cases, and has cured or benefited these patients with auto-genous vaccines, is no more conclusive proof than the numbers of cases and cures reported by Wallis. Some who have tried Murray's methods have been more or less successful in one or two isolated cases, while others have failed in their efforts of substantiation. As in all other things, we have the unbounded optimism of the enthusiastic discoverer, and the iconoclastic skepticism of the veteran who has witnessed the failure of many well-heralded innovations. We must await the results of others in large series of cases before Murray's claims can be taken as final. Certainly he has opened a new field for investigation concerning pruritus ani; and should subsequent investigations bear him out, he will have won, in addition to the enmity of the quack, the thanksgiving of thousands of sufferers.

JEROME WAGNER, M.D.

### INFORMATION REQUIRED BY THE NEW POSTAL LAW.

At the last session of Congress, an amendment was added to the Post Office Appropriation Bill, requiring the filing and publication of certain information concerning the ownership and editorship of periodicals admitted to the mails as second-class matter. This amendment reads, in part, as follows:

SEC. 467½. It shall be the duty of the editor, business manager, or owner of every newspaper, magazine, periodical or other publication to file with the Postmaster General and the postmaster at the office at which such publication is entered, not later than the first day of April and the first day of October each year, on blanks furnished by the Post Office Department, a sworn statement setting forth the names and post-office addresses of the editor and managing editor, publisher, business managers, and owners, and in addition the stockholders, if the publication be owned by a corporation; and also the names of known bondholders, mortgagees and other security holders. . . . A copy of such sworn statement shall be published in the second issue of such newspaper, magazine or other publication printed next after the filing of such statement.

In accord with the provisions of the law we have placed our sworn statement on file with the Postmaster General and with the postmaster at New York, and reprint it herewith:

### STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.

of THE INTERNATIONAL JOURNAL OF SURGERY, published monthly at 100 William Street, New York City, required by the Act of August 24, 1912.

NOTE.—This statement is to be made in duplicate, both copies to be delivered by the publisher to the postmaster, who will send one copy to the Third Assistant Postmaster General (Division of Classification), Washington, D. C., and retain the other in the files of the post office.

Editor-in-Chief, Dr. Paul J. Rosenheim, 226 West 97th Street, New York City; Managing Editor, Dr. Frank C. Lewis, 57 West 58th Street, New York City; Publishers, International Journal of Surgery Company, 100 William Street, New York City.

Owners: H. Edwin Lewis, M.D., 57 West 58th Street, New York City; Frank C. Lewis, M.D., 57 West 58th Street, New York City; Paul J. Rosenheim, M.D., 226 West 97th Street, New York City; Frank W. Hastings, Jr., 131 Overlook Ave., Hackensack, New Jersey.

Known bondholders, mortgagees, and other security holders, 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

FRANK C. LEWIS, M.D.,

Managing Editor.

Sworn to and subscribed before me this 31st day of October, 1912.

M. F. CAVALLON,

Notary Public.

### AMERICAN SURGICAL ASSOCIATION.

The American Surgical Association has appointed a committee consisting of Drs. William L. Estes, South Bethlehem, Pa.; Thomas W. Huntington, San Francisco, Cal.; John B. Walker, New York, City; Edward Martin, Philadelphia; and John B. Roberts, chairman, 313 S. 17th street, Philadelphia, to report on the operative and non-operative of closed and open fractures of the long bones and the value of radiography in the study of these injuries. Surgeons who have published papers relating to this subject within the last ten years, will confer a favor by sending two reprints to the chairman of the committee. If no reprints are available, the titles and places of their publication are desired.

JOHN B. ROBERTS, Chairman,

313 S. 17th Street, Philadelphia.

### CORRESPONDENCE.

To the EDITOR:

I am preparing a monograph on tumors and diseases of the omentum, and wish to either purchase or secure gross specimens, microphotographs, drawings or sections of this structure. Credit will be given to the physician from whom they are secured. A competent pathologist, in the laboratory attached to my office, will take the gross specimens, work them up, make a laboratory report, and return remnants of specimens, if so desired.

HUGH CROUSE, M.D.,

El Paso, Tex.

## **Department of Railway Surgery**

**OFFICIAL ORGAN**

**THE ASSOCIATION OF SURGEONS OF THE SOUTHERN RAILWAY.  
ASSOCIATION OF SURGEONS OF THE PENNSYLVANIA LINES.  
ASSOCIATION OF SURGEONS OF THE SEABOARD AIR LINE RAILWAY.**

### **THE PSYCHIC EFFECTS OF ACCIDENTS.**

By **TOM. A. WILLIAMS, M.B., C.M., Edin.,**  
Washington, D. C.

*Corresponding Member, Paris Neurologic and Psychic  
Societies, Neurologist to Epiphany Dispensary.*

*(Concluded.)*

*History of a Case of Simulated Quadrantic Hemianopsia.* An ex-sailor of forty-one was referred by Dr. Henning to whom he had been sent by Dr. Burch because of inability to perform more than light work. The patient had a small pension and had applied for an increase. He declared that he was believed epileptic in the navy, and that since the accident of falling out of his hammock while asleep fifteen years ago, after which he was totally blind, remembering nothing, life had seemed a dream. It was hard for him to understand people; his memory was poor, and he was very nervous on the street, not being able to see out of one side of the eye and bumping into objects. As the hemiopic person carries his head turned towards the side of the sound retina and has to turn his head still further to see objects on that side of him, I suspected this man at once, for there was no deviation of the head. I accordingly nonchalantly asked him to move a dark screen so that he could be hidden while stripping. He did this in a dark corner without any head movement to indicate loss of vision in the periphery of either visual field. But on approaching the field with test objects in the usual way, he declared that these were only seen as they impinged upon the right upper retinal quadrant, i. e., below and to the left. As to his apparent good faith there was added a loss of the right Achilles reflex and some inequality of others, along with an uncertainty of the sensibility of the diapason on the malleoli, it was necessary to confirm either the patient's opinion, that his visual field was restricted, or my own, that it was not. As the pupils reacted normally and the optic papilla was not diseased, an anterior lesion was excluded. The diagnosis of simulation was clinched by his winking when I placed before the right field of the right eye the percussion hammer with which I was ostensibly testing the

orbicular response to a tap on the facial nerve. This took place both from above and below, on the left and right side, and conclusively proved that he actually perceived objects with all parts of the visual field.

It is hardly conceivable that such a syndrome had occurred by suggestion in medical examination, and I stated that it was intentional. This was proven when he visited me for the second time, after I had told his doctors what I had found; for on presenting the hammer in the same manner as before no wink occurred, the patient staring fixedly before him and declaring that he saw nothing except when the hammer was below to the left. It was, however, easy to show that he was feigning, by holding opposite the mid-horizontal plane of the eyeball just within the visual field two strips of color. He saw only the one color, and when they were reversed similarly. But he saw the color which impinged upon the blind field, and not that upon the field which saw. Hence, his feigning was deliberate, as he had suppressed the reaction by which it had been formerly detected, and yet still showed, unknown to himself, that his blind field saw.

*The Management of the Psychic Effects of Accidents.* The treatment is, as appears, rational knowledge of genesis and proper re-education of the patient's viewpoint by a profound understanding of his psychology. Assurance is useless without this knowledge. Indeed, rapid encouragement only antagonizes the patient. Honesty is the best, the only policy.

The following case, seen with Dr. S. S. Gale, N. and W. Railway, clearly illustrates the procedure:

A railroad brakeman was thrown by the giving way of a stirrup while his train was traveling about ten miles an hour. He fell on the small of his back against a bank of earth, rolled over two or three times, and lost consciousness for over half an hour. After crawling about half a mile he was found. He felt sick all over and brought up blood, which also came from the bladder and bowels—only that day, however. After reaching his home town, he was assisted to his house, one and a quarter miles away. He did not sleep that night, but rested the next morning. In the afternoon he became restless, and sticking pains occurred in the back and lasted several days. He was up and about with a crutch in fourteen days, but shortly afterwards he lost the use of his legs, having to move them with his hands. He walked about on crutches, though he felt faint after progressing two or three squares. On account of anxiety and want of means he soon after

went to live with his mother, his wife going to her father. When questioned, he replied: "Well, yes, I missed her;" but he stated that he was too pre-occupied with his health to care much. About three months later he was able to hobble with a stick only, but varied from day to day in his power to do so.

He said he felt a buzzing and severe pain in the head as well as in the back; these did not begin until one month after the injury. He worried much over his position and circumstances and the dependence of his wife, and in being unable to help her and his mother, who was an invalid with a younger boy to take care of. (He wept while relating this.) He never worried before his accident, but now he could not help it, for though he was owed \$225 by an accident insurance company, they would not pay him anything. He did not know what to think about his health, for though the railroad doctor upon seeing him after the accident declared he would soon recover and be able to work, he had lost over twenty pounds in weight, had become very weak, had sore throat, capricious appetite and sallow skin, and wept nearly every day. Moreover, about ten days after the injury, two other doctors, called in by his family, said, each independently of the other, that he had a congestion of the spine, which though probably temporary might last a lifetime. He had a very severe "fainting spell" one day after a cold, but when interrogated he confessed to having eaten a large meal of sweet milk and cold slaw, and this was the only occasion since the accident upon which he had actually vomited, though he had often had a dull sick feeling when overheated. He wished he had never seen a railroad, "meaning nothing detrimental to anyone but myself."

He had employed attorneys who were bringing a claim against the company; he had asked for \$2,500 and employment, and had received much sympathy from his friends. When asked his object in this, he replied: "I will be frank with you and all. I was looking forward to promotion. It was no fault of mine that I was injured; if it had been, I would have said nothing. I merely asked for a sum of money and a job I could do. I could get around and do a job I could do, but I would never railroad again; for in catching a box local, it means heavy weights all day, and I cannot gain promotion except through this." He thought he might do office work, though he dreaded it; for outdoor occupation suited him better than the confinement of bookkeeping; besides, a good brakeman could make a hundred dollars a month.

Upon examination, I found the tendon reflexes equal on the two sides and neither exaggerated nor unduly feeble. The cutaneous reflexes were all unusually active with the exception of the plantar, in which, however, the toes distinctly flexed upon several occasions, until inhibited volitionally. When I distracted his attention, flexion again occurred. A pin prick on the lower limbs was called a punch, cold steel was thought to be warm, and the diapason was felt only when in full vibration. Cotton wool was not felt in front as high as the groin, and behind as high as the iliac crest on the right side, at first, but after the left side had been examined and found insensitive only as far as the gluteal fold, he confessed to feeling the wool on the right buttock also. When asked to say when he did not feel the wool, he said "no" the first seven times he was touched on various parts of the lower limbs, later ceasing to reply. The gluteal esthetic boundary varied by about two inches at different examinations. In the lumbar region he was bilaterally hyperesthetic in a two-inch zone, shading off below and sometimes extending onto the buttocks. Posteriorly, the upper border of the zone corresponded to D. 12 and L. 1; laterally to D. 10-11, and anteriorly to D. 8-9. These symptoms resembled to a superficial observer those of a crush of the cord.

The motor power was good. When he attempted to use the legs alone, he strongly tightened up the antagonistic muscles; but when his attention was diverted he could maintain powerful extension of the knee, even on the left side, though he declared himself weak there from an old dog-bite. Babinski's combined flexion was negative. The pupils were equally dilated and responded promptly and vigorously to light and accommodation, but no pain reflex could be elicited. There was no loss of memory or other intellectual defect, although the affectivity was perturbed as described.

It should be evident that the incapacity of this man arose from the fixed idea, very probably inculcated after the accident by his friends, although contributed to largely by the common belief of railroad employees, that an accident can induce serious nervous disease. The doubtful prognosis of the doctors, evidently unskilled in neurological diagnosis, strongly fortified the man's belief and consequent anxiety. The anesthesia, produced by previous medical examinations, might have deceived an inexperienced observer, but the wool test, which had not previously been performed as I made it, quickly revealed not only an "un-

educated" line of demarcation, but demonstrated that the man did feel by the very fact that he said he did not. Of course, even had I not succeeded in thus demonstrating the incongruity of the syndrome with the neuropathology of the spinal cord, the complete conservation of all the reflexes was sufficient to show that the anesthesia did not arise from disease of the spinal cord.

The diagnosis, then, was hysteria, the psychic elements of which were clearly revealed in the foregoing history. The prognosis given was favorable, but I first explained to the patient and doctor separately the real genesis of the disorder, showing the former the effects of worry and anxiety upon bodily nutrition and the role of ideas over bodily activity.

The treatment I recommended was the re-establishment of good nutrition, regular exercise, removal of grief and worry by the assurance of a reasonable compensation for the anxiety and loss he had suffered (for though his ideas were erroneous, and he was in one sense of the word a simulator, he was so unconsciously, and because of the environmental beliefs he had acquired), and the declaration that by following my treatment he would be capable of moderate work in a few weeks, and in a short time would be entirely restored to health. Being asked for a certificate, I gave the following to both patient and doctor: "This is to certify that I find Mr. V. to be suffering from a condition of incapacity for free walking or mental or physical work from the effects of a fall from a brake car (as I am informed). This state is induced, as a result of the aforesaid accident, by the worry, anxiety, and loss of means directly caused thereby. I believe that by appropriate treatment he could be restored to a certain extent within one month, and that within three months he could be fully capable of pursuing any laborious avocation he chose. He is, however, at present in too low a state to be capable of long, continuous labor, even though the incapacity of the limbs were immediately removed. There is, and has been, no disease of the spinal cord or peripheral nerves at play in the induction of any of the symptoms which I find. The erroneous belief that there has been such an injury powerfully contributes to the anxiety which maintains his present state."

As to the outcome, a letter from the doctor a few days ago stated in reply to my query: "We compensated V. by a sum of six hundred dollars, and he went back to work on time just as you predicted." "Naturam morborum curationes ostendunt."

The replacement of the morbid feeling tone by another cannot be direct, but must be accomplished by replacement of the causative idea by another, and this is what, indeed, the psychotherapist does in the gastric neuroses. But in traumatic cases the litigious element often prevents this, for the patient is suspicious of everyone who does not accede at once to his fixed idea that he is incapacitated, and medical men as a whole are not noted for the psychological finesse required in approaching such cases. Hence, access, even if gained, is quickly lost, except by physicians whose belief concords with that of the patient, and these, believing as falsely as he, are as helpless to cure him.

It must be remembered, too, that mere affirmation may prove a very poor appeal, for a cold, intellectual acceptance is not enough to change an attitude of mood which has been assumed for any considerable time. Intellectual acceptance must entrain immediate action, whether emotional or not; for the whole bearing of the patient's mood must be orientated towards a desired idea—that of disappearance of the hurtful idea-emotion complex. Thus, I obtained the active consent of my patient, and he was invited to dine with his doctor that night, made to feel optimistic, and then taken home and the settlement clinched at once.

It is clear that the return of this man's functional capacity was the result of the enlightened and skillful persuasion he received during our interview, seconded by his physician, who saw that immediate action followed an intellectual conviction which might not have been maintained against the counter-suggestions he would have again received in the environment of invalidism which had grown up around him. It must be remembered that patients with a fixed idea become aboulie where other matters are concerned. Thus, Brissaud remarked of a patient who went into a fit when they gently attempted to extend the contraction of a limb which had lasted five years since a railway accident. "This contracture is my life." Misoneism, the impossibility of adaptation to unusual conditions, is common enough, and its intensity is proportional to the length of time during which the mental habit has persisted, as well as to the affection, so to speak, with which one's habit or defect has been cherished and the age at which they have been acquired, and in such persons conviction soon becomes inert if allowed to sleep.

1705 N Street.

# PROCEEDINGS OF ASSOCIATION OF SEABOARD AIR LINE RAILWAY SURGEONS.

Eleventh Annual Session, Held at Tampa, Fla., October 30-31, 1912.

## FIRST DAY—MORNING SESSION.

The Association met in the convention hall of the Tampa Bay Hotel at 10 o'clock a. m., and was called to order by the President, Surgeon Samuel C. Benedict. The invocation was offered by Rev. Father Navin. The Address of Welcome in behalf of the city of Tampa was made by Mayor McKay, and the response by Chief Surgeon Jos. M. Burke, Petersburg, Va.

*Report of Entertainment Committee as follows:*

Thursday, 4 p. m., an automobile joy-ride around the city for the surgeons and ladies.



DR. J. H. MILLER, CROSS HILLS, S. C.,  
President of Association of Seaboard Air Line Railway  
Surgeons, 1912-1913.

Thursday, 9 p. m., a banquet for the surgeons and their wives at the Tampa Bay Hotel, tendered by the officials of the Seaboard Air Line Ry. While the scientific sessions are in progress, the ladies will be entertained by a launch ride to Sulphur Springs and afternoon social tea in hotel rotunda.

Friday, November 1, magnificent boat and fishing trip from Tampa to Sarasota. The steamer is furnished to the surgeons complimentary by Mr. Saverese, the owner. The Seaboard Air Line officials

will tender the surgeons and their families a luncheon on this trip.

Friday evening, at 9 o'clock, the Sarasota Chamber of Commerce will tender the surgeons and their families a banquet at Sarasota. Dr. Jack Holton will take the surgeons and the ladies out in automobiles to the grape-fruit and orange groves, and in boats to the best fishing places.

This program was all carried out to the letter.

*The Committee on Necrology* reported the following deaths:

Dr. E. W. Pinson, Cross Hill, S. C., aged forty-two years. First located and practiced medicine in Lincoln, Ga., for two years. Returned to his native State and located at Cross Hill, S. C. Became associated with his uncle, Dr. J. H. Miller, and continued in active practice until November 5, 1911, when he was stricken with paralysis and died July, 1912.

Dr. J. W. Nance, of Lake City, Fla., and Dr. G. W. Lamar, of Quincy, Fla., died since our last meeting, but we have been unable to learn particulars about them.

Respectfully submitted, Surgeon W. C. Griffin, Cartersville, Ga.; Surgeon J. E. Malone, Louisville, N. C.; Surgeon J. B. Curtis, Orange Heights, Fla.

*The Committee on Compensation* reported, as previously printed in the last Transactions. A motion was made and carried that this committee be dismissed with thanks of the Association, and that they be reimbursed by the Association for their expenses on this trip.

Dr. Wm. Weston of Columbia, S. C., Chairman of Committee on Foreign Transportation, reported the following:

Columbia, S. C., October 28, 1912.

To the Surgeons of the Seaboard Railway Association:  
Gentlemen:

At the last meeting of our association in Washington, I was appointed a committee of one to ascertain our status in regard to receiving transportation over other lines than the Seaboard.

I beg leave to report that in compliance with your instructions, I immediately took up the matter with Senator B. R. Tillman, who you will recall had a very prominent part in the making of the laws for the guidance of the Interstate Commerce Commission.

After much correspondence and several personal interviews between Senator Tillman and the Interstate Commerce Commission, we have ascertained the following facts, which I transmit to you for your information:

First: There is no law which forbids one railroad company requesting a pass for one of their surgeons over another railroad.

Second: The Interstate Commerce Commission has never issued any order declaring the issuance of such a pass unlawful.

Third: Surgeons are put by the Interstate Commerce Commission identically on the same basis as lawyers in the employ of railroad corporations.

Fourth: We find that the matter is purely a question for determination by the railroad officials as to whether their surgeons shall receive passes from foreign lines, and as stated before, has not been a matter of decision by the Interstate Commerce Commission.

Sincerely trusting that this brief report will answer to your satisfaction the question at issue, I beg leave to remain, with great respect,

Yours very truly,  
WILLIAM WESTON.

A resolution thanking Dr. Weston was passed by the Association. The following motion was made and carried:

Moved that the Association request that a copy of Dr. Weston's report in reference to foreign transportation be sent to the General Claim Agent and Chief Surgeon, and that they be requested to bring the matter to a satisfactory conclusion.



DR. J. W. PALMER, AILEY, GA.,  
Secretary and Treasurer of Association of Seaboard Air Line  
Railway Surgeons, 1912-1913.

#### AFTERNOON SESSION.

The meeting was called to order at 3 p. m. by the President, Surgeon Samuel C. Benedict.

Surgeon J. G. Dean, Dawson, Ga., read a very interesting paper, entitled "Report of Surgical Cases with Incidental Reference to the Use of Chloroform." The discussion was opened by Surgeon Southgate Leigh of Norfolk, Va., and continued by Surgeons G. A. Neuffer, Abbeville, S. C.; J. E. Malone, Louisburg, N. C.; H. A. Burke, Pet-

ersburg, Va.; S. R. Benedict, Athens, Ga.; J. W. Smith, Branchville, Va.; E. H. Pomeroy, Braidentown, Fla.; W. W. Wilkerson, LaCrosse, Va.; C. B. Wilkerson, Apex, N. C.; H. H. Seeley, Tampa, Fla.; R. L. Harris, Jacksonville, Fla.; J. C. Knight, Plant City, Fla.; L. S. Oppenheimer, Tampa, Fla.

"Miscellaneous Remarks on Surgery" was the title of a very appropriate paper by Surgeon H. D. Stewart, Monroe, N. C.

A timely paper on "Apomorphine" was read by Surgeon R. B. Epting, Greenwood, S. C. It was discussed by Surgeons John W. Smith, Branchville, Va.; G. A. Neuffer, Abbeville, S. C.; E. H. Pomeroy, Braidentown, Fla., and Chief Surgeon Jos. M. Burke, Petersburg, Va.

"Tetanus with Blood Poisoning" was the title of a valuable contribution by Surgeon J. E. Malone, Louisburg, N. C.

"Tetanus Antitoxine in Railway Surgery" was the title of an excellent paper read by Surgeon Southgate Leigh, Norfolk, Va.

These papers were discussed by the following surgeons: C. B. Wilkerson, Apex, N. C.; M. P. Perry, Macon, N. C.; E. H. Pomeroy, Braidentown, Fla.; J. W. Smith, Branchville, Va.; J. G. Dean, Dawson, Ga.; L. S. Oppenheimer, Tampa, Fla.; A. B. Croom, Maxton, N. C.; R. L. Harris, Jacksonville, Fla. Meeting adjourned.

#### EVENING SESSION, 8 P. M.

The meeting was called to order by First Vice-president, Surgeon H. A. Burke, Petersburg, Va.

President, Surgeon Samuel C. Benedict, Athens, Ga., delivered his address, after which the Association was entertained by a concert.

#### SECOND DAY—MORNING SESSION, 10 A. M.

Surgeon G. A. Neuffer, Abbeville, S. C., read a very interesting paper on "An Improved Method of Treating Leg Ulcers." It was discussed by Surgeons Calvin T. Young, Plant City, Fla.; S. R. Benedict, Athens, Ga.; S. B. Little, Colbert, Ga.; E. H. Pomeroy, Braidentown, Fla.; C. B. Wilkerson, Apex, N. C.; Surgeon Neuffer in closing.

The Executive Committee made the following report:

We recommend the following surgeons for membership: Surgeons J. G. Baskin, Dunellon, Fla.; Wm. Griffith, Dunellon, Fla.; E. H. Pomeroy, Braidentown, Fla.; John C. Wills, Starke, Fla.; A. B. Croom, Maxton, N. C.; W. C. Bostic, Forest City, N. C.; J. S. Norman, Bladenboro, N. C.; W. N. Thomas, Oxford, N. C.; Calvin T. Young, Plant City, Fla.; W. D. James, Louisburg, N. C.; T. B. Henderson, Boykin, Va.; J. B. S. Holmes,

Tampa, Fla.; W. C. Person, Orlando, Fla.; J. E. Johnston, Elberton, Ga.

We recommend that the next place of meeting be Petersburg, Va.

We recommend that Amendment I in Constitution be changed to read as follows: "Our annual meeting can be held any time from August 1st to November 1st of each year."

On motion the Association accepted the recommendations.

Chief Surgeon Jos. M. Burke read the following letter from W. J. Harahan, President of the Seaboard Air Line Railway. This was unanimously and enthusiastically received by the Association, as Mr. Harahan seems to be one among the first, if not the first, of railroad presidents to see and appreciate the importance and value of railway surgeons. The Seaboard surgeons appreciate and welcome their new President, and Dr. Burke complimented him in glowing terms, assuring the Association that he is a most excellent gentleman, and that his co-operation may be expected. Dr. Burke asked and urged the surgeons to use their influence in their localities to further the interests of the Seaboard in general.

Our Chief Surgeon was so much pleased with Mr. Harahan's letter that he read it again at the banquet. The Association, by unanimous vote, asked that the letter be published in the JOURNAL and the Transactions.

SEABOARD AIR LINE RAILWAY.

OFFICE OF THE PRESIDENT.

Norfolk, Va., October 28, 1912.

My dear Sir:

I received in due course your letter of October 22nd, extending to me an invitation to be present at the meeting of the surgeons on October 30th and 31st.

It would have given me very great pleasure to have been present at this meeting had it been possible for me to do so, but on account of other important engagements intervening it is impossible for me to be with you.

I am sure that the surgeons would be delighted to extend to me the hearty welcome that your letter indicates, and it would have been great pleasure to me to have personally received the welcome.

I note that you ask that I offer you any advice for the good of the service which would be conducive to having the Association continue to do the good work that it has done heretofore. I really do not feel qualified to offer any advice from a technical standpoint, as I feel that the Chief Surgeon is fully qualified to outline all advice necessary from that standpoint, and the subjects of the papers which you show in your program are such as indicate that the field is well covered technically.

There is one thing, however, to which I would like to call attention, and that is, the opportunity that the company surgeon has to be of service to the railroad outside of his professional capacity, and that is, in helping in carrying on the desire of the company to cultivate the good-will of the people along its line.

The surgeons, as a general proposition, are of the highest grade of the people we have in the cities along the railway; the very nature of their profession is such that this is true and, therefore, they are in a position to reach people that others can not, and while I would not ask them

to do this obtrusively, yet there are many occasions on which they can place the railroad "right" before the people, and do it in an incidental kind of a way that will carry with it great weight.

I believe that the railroads are really trying to do what is the right thing, and I am sure that this railroad is. I am also just as sure that it is the best policy to do so. The railroads are business institutions, the same as other business institutions, and I feel that they are being run honestly and want to serve the community in an honest way, and that they should have the respect of the community to as great an extent as any other line of business.

I would earnestly ask the members of your Association that when they hear slighting remarks, or when it comes to their knowledge that prejudice is being created against the railroad, they do their utmost to remove such an impression, or, if they feel that the railroad company is wrong, which it sometimes is, that they would call our attention to it so that we may either explain the situation, as sometimes it only requires an explanation to remove that feeling, or that we may remedy it in case we are doing the wrong thing.

I wish you a very successful meeting, and trust that I may have the opportunity of being present at some of your future meetings.

Yours truly,  
W. J. HARAHAN,  
President.

Dr. Joseph M. Burke,  
Chief Surgeon, Seaboard Air Line Railway,  
Petersburg, Va.

"Treatment of Fracture of Long Bones" was the title of a very able paper presented by Surgeon H. A. Burke, Petersburg, Va. Discussion was opened by Surgeon M. P. Perry, Macon, N. C.

"Professional Mannerism" was the title of a very important paper presented by Surgeon Jno. H. Miller, Cross Hill, S. C., and discussed by Surgeon J. W. Palmer, Ailey, Ga. Discussion was closed by Surgeon Miller.

*Loving Cup to Chief Surgeon Jos. M. Burke.*  
As a token of the esteem and affection the members have for their Chief Surgeon, Dr. Jos. M. Burke, Petersburg, Va., they presented to him a costly and beautiful loving cup. In very appropriate words Surgeon Southgate Leigh of Norfolk, Va., presented this cup to Chief Surgeon Burke, who in very effective words expressed his appreciation of such a token.

Meeting adjourned.

AFTERNOON SESSION, 3 P. M.

Dr. S. R. Benedict, Athens, Ga., read a very interesting paper on "Tincture of Iodin." It was discussed by Surgeons R. L. Harris, Jacksonville, Fla.; J. G. Dean, Dawson, Ga.; C. B. Wilkerson, Apex, N. C.; H. A. Burke, Petersburg, Va.; S. B. Little, Colbert, Ga.; J. H. Miller, Cross Hill, S. C.; J. E. Johnson, Elberton, Ga.; W. C. Person, Orlando, Fla.; H. D. Stewart, Monroe, N. C.; R. B. Epting, Greenwood, S. C.; S. C. Benedict, Athens, Ga.; J. S. Norman, Bladenboro, N. C.

Surgeon J. W. Palmer, Ailey, Ga., Secretary and Treasurer, made his report.



Surgeons J. H. Miller and J. W. Smith, Auditing Committee, reported Secretary's account correct as rendered.

One of the most interesting papers read was that presented by Surgeon Jno. W. Smith, entitled "The Country Doctor; His Opportunities and Limitations." The discussion was opened by Surgeon Southgate Leigh, and continued by Surgeons E. H. Pomeroy, Braidentown, Fla.; and A. B. Croom, Maxton, N. C.

"A Knife Wound of the Head" was the title of an interesting paper read by Surgeon J. L. Kennedy, Manassas, Ga., and discussed by Surgeon W. C. Griffin, Cartersville, Ga.

"Hygiene of Railway Passenger Trains" was the title of one of the most important papers before the meeting. This was presented by Surgeon E. H. Pomeroy, Braidentown, Fla. Discussion was opened by Surgeon Southgate Leigh, Norfolk, Va., and continued by Surgeons S. R. Benedict, Athens, Ga.; J. D. Ingram, McBee, S. C.; Chief Surgeon Jos. M. Burke, Petersburg, Va., and Dr. Pomeroy in closing.

#### RESOLUTIONS OF THANKS.

Before adjournment the surgeons passed the following resolutions:

"*Resolved*, That the Association of Seaboard Air Line Railway Surgeons tender its thanks to the management of the Tampa Bay Hotel for the courteous and very satisfactory manner in which it has cared for us.

"*Resolved*, That the Seaboard Air Line Railway Surgeons tender their thanks to the press of the city of Tampa for its courteous manner of reporting our meetings.

"*Resolved, Further*, That thanks be extended to Chief Surgeon Joseph M. Burke for his strenuous work in making the meeting a success, and for his efforts in securing free Pullman transportation and funds from the Seaboard management for the banquet and boat luncheon.

"*Resolved, Further*, That the thanks of this Association be extended to the Seaboard officials for the interest they have manifested in our meeting, and we desire particularly to express our appreciation for the banquet and luncheon tendered the members of this Association at this meeting.

"*Resolved, Further*, That the thanks of the Association of Seaboard Air Line Surgeons be extended Dr. L. S. Oppenheimer and the local members of the Association for the able manner in which they have arranged for, entertained and cared for the Association."

#### RESOLUTIONS BY LADIES.

The following resolutions were passed by the wives of the surgeons:

"*Resolved*, That the families of the Surgeons of the Seaboard Air Line Railway beg to sincerely thank the management and Chief Surgeon of the Company for the magnificent and kindly treatment of them, in providing free Pullman transportation and donation for our entertainment at the annual meeting of the Association of Surgeons at Tampa, Fla.; and

"*Resolved, Further*, That a copy of these resolutions be transmitted to the President and Assistant General Manager.

"The families of the Seaboard Air Line Surgeons also wish to thank the entertainment committee of Tampa and Mr. H. M. Stanford for the courtesies extended.

"(Signed): Mrs. Robert L. Harris, President; Mrs. C. A. Neuffer, Vice-president; Mrs. A. E. Croom, Secretary."

The following officers were elected:

President, Surgeon John H. Miller, Cross Hill, S. C.

First Vice-president, Surgeon H. Aulick Burke, Petersburg, Va.

Second Vice-president, Surgeon J. D. Ingram, McBee, S. C.

Third Vice-president, Surgeon S. R. Benedict, Athens, Ga.

Secretary and Treasurer, Surgeon J. W. Palmer, Ailey, Ga.

Surgeon John M. Blair was re-elected a member of the Executive Committee for a term of five years.

On motion, the meeting adjourned.

J. W. PALMER, *Sec. and Treas.*

### THE ASSOCIATION OF SURGEONS OF THE ATLANTIC COAST LINE RAILROAD.

This association met in Richmond Va., October 15th and 16th, with a good attendance. Dr. J. M. Parrott, Kinston, N. C., the president, was in the chair. The program included a number of interesting papers and a most instructive talk by the Chief Surgeon, Dr. G. G. Thomas, of Wilmington, N. C. A reception at the Country Club on the first afternoon, and a trip down James River on the second day, were the social features enjoyed. A very pleasing feature of the meeting was the presentation of a handsome traveling case to Dr. Thomas and a silver card case to Mrs. Thomas, by the members in attendance.

The following were elected officers for the coming year: President, Dr. John S. McEwan, Orlando, Fla.; vice-presidents, Drs. S. T. Nicholson, Washington, N. C.; C. E. Moore, Wilson, N. C.; H. B. Mahood, Emporia, Va.; secretary-treasurer, Dr. C. P. Aymar (re-elected), Charleston, S. C.; members of executive committee, Drs. G. G. Thomas, Wilmington, N. C.; Southgate Leigh, Norfolk, Va.; I. F. Hicks, Dunn, N. C.; W. S. Lynch, Scranton, S. C.; M. N. Stow, Jesup, Ga.; Oliver J. Miller, Sanford, Fla., and G. A. Hammond, Dothan, Ala. The next place of meeting will be decided upon later by the executive committee.—*Va. Med. Semi-Mo.*, Oct. 25, 1912.

## Book Notices

**Murphy's Clinics.** Issued Serially; One Number Every Other Month, Six Numbers a Year. Per Year \$8.00. Volume 1, Nos. 2 and 3. Philadelphia: W. B. Saunders Co., 1912.

The second number of Dr. Murphy's Clinics shows an interesting choice of subjects. Of the nineteen cases described, nine are of patients with some form of bone or joint injury. In three of the cases he discusses somewhat at length his method of treatment of compound fractures. An abstract of this statement has already been published in the July number of this journal.

He emphasizes the importance of not plating any compound fracture until it has been converted into a simple one, and strongly urges against operating on an infected fracture until all infection has ceased.

Dr. Murphy shows his greatness as a teacher in fearlessly repeating again and again the principles of the repair of bone and their application in the treatment of ununited fractures. We realize that it takes just this constant pounding to drive these ideas into the heads of the rank and file of the profession.

The same may be said of his treatment of infected joints with the glycerin and formalin solution—a method which has been remarkably successful in his hands, but, for some unaccountable reason, one which has not been so generally adopted by other surgeons.

His clinic on Volkmann's Contracture is one that should be read by all, for it shows so well the evil effects of too long splintage and too tight bandaging in fractures. His case is an extreme one, but in a lesser degree such results are altogether too frequent in our fracture work.

We cannot quite agree with Dr. Murphy that this condition results entirely from a myositis. The

observations of Castex, Lucas-Championniere, Mennell, and a number of others, have shown similar changes in nerves, bloodvessel walls, ligaments and fascia in the affected limb.

Of especial interest was his treatment of Charcot joint—an ankle in which he removed all the diseased bone, squared up the ends of the bones, and held them in place with large nails.

So much in this second number is good, one hardly knows which to select, but the above is sufficient to indicate its character—all too good to be lost, and all well worth re-reading.

It is gratifying to observe that the minor faults noted in Number One of these clinics have been in the main corrected in the later ones. We expressed a desire in our review of this number to hear more of the cases there described. We did this the more strongly because we felt that we were only voicing the wish of his thousands of readers the world over. In the opening clinic of Number Three, Dr. Murphy has granted our wish by bringing in ten of these old cases, giving us their subsequent histories and showing us the result of his work.

Another improvement upon the work of Number One is the making of each clinic the basis of a rather complete exposition of the whole subject, rounding it out and making it a finished product.

This is notably true of that on Cystic Goiter. Here Dr. Richard J. Tivnen supplements the work of Dr. Murphy with a talk on the examination of the vocal cords in goiter. This clinic is a systematic review of the anatomy, physiology and pathology of the thyroid gland with the treatment, both medical and surgical, of its various diseases.

In his clinic on Division of the Brachial Plexus he again reviews the laws governing the regeneration of nerve tissue, which he has applied to successfully to nerve surgery.

The clinics on Tumor of the Kidney and Cholelithiasis are full of practical suggestions on the diagnosis and treatment of surgical conditions of the kidney and gallbladder.

This number closes with a chapter on "Five Diagnostic Methods of John B. Murphy." These are methods used for years by Dr. Murphy in the differential diagnosis of some acute affections of the abdomen, and are original with himself. They are simple in performance and should be very useful, not only to the surgeon, but to the general practitioner.

The x-ray pictures, drawings and photographs add much to the usefulness and attractiveness of the work.—A. W. C.

**Operative Surgery.** A Handbook for Practitioners and Students, by Prof. Dr. Victor Schmieden, Privatdozent of Surgery in the University of Berlin, Assistant in the Royal Surgical University Clinic. Second enlarged Edition, with a Foreword by Prof. Dr. A. Bier. Translated and Edited by Arthur Turnbull, M.B. (Glasg.), M.A., B.Sc., Demonstrator of Anatomy in the University of Glasgow. Published by William Wood & Co., New York. Price \$4.00, net.

This volume is an English translation of the second edition of the well-known work by Professor Schmieden, both volumes appearing almost simultaneously. This work is not a text-book on surgery, but a guide to topographical anatomy and surgical technic, as far as they can be practiced on the cadaver. Technically, the volume covers the ground of the author's course in operative surgery, and is intended for students or graduates, principally, however, the former. As a student's guide it is excellent. The illustrations, four hundred and thirty-five in number, are unusually clear, and illustrate the respective subjects most illuminatingly. Only the modern operations in surgery are mentioned, but there is a wealth of succinct information that must be of value to the reader. Individual methods are not discussed, and simple methods have been given preference over those more complicated. Naturally, Professor Schmieden follows closely the teachings of his master, Professor Bier, at the latter's clinic.

In this edition, considerable alterations and additions have been made in various chapters, while others have been remodeled entirely, chiefly the chapters on the stomach and intestines. There are a number of new sections, namely, those on suture of bone, puncture of joints, Bellocq's temponade, extraction of teeth, extirpation of the inguinal and cervical glands. All of these new sections are admirably written and beautifully illustrated.

The teachings are those of Professor Bier throughout. American surgeons, however, will take issue on some of them. For instance, the Pfannenstiel method of opening the bladder, by a transverse incision, which is being advocated by some of our most prominent surgeons, is only mentioned to be condemned as being "unduly destructive." Several other instances of a like nature may be mentioned.

The translation is very well done, so well, in fact, as to deceive the reader into believing that he is reading a book written in English, and not in German.—A. L. W.

Arthritis deformans, rheumatoid arthritis, or what you will, is no pathologic entity, but includes a number of infections.—F. W. Cochems (*Colorado Medicine*).

## Surgical Gleanings

**Improved Operation for Prolapsus Uteri.**—Dr. C. S. Venable (*Tex. S. Jour. Med.*, Aug., 1912) describes an operation which combines the advantages of the various procedures on the round and sacro-uterine ligaments. A generous incision is made, the abdominal cavity explored, the patient placed in the Trendelenburg position, and the bowel carefully displaced upward and retained by packs and a broad retractor. The uterus is grasped with the left hand and lifted from the deep pelvis, and the fundus seized with tenaculum forceps; the operator then passes his thumb and forefinger in front of the broad ligaments and approximates them behind the body of the uterus as this organ is raised and drawn forward. The posterior surfaces of the broad ligaments are thus brought together, or, if sufficient relaxation does not exist for them to meet, a corresponding point on either side is brought to a line on the posterior aspect of the uterus, the operator exerting sufficient tension to see that, if so held, the uterine position will be as desired. These are selected as the sites for the introduction of a suture, which is as follows: The broad ligament on the right side is grasped between the thumb and forefinger of the operator, and the ovarian vessels located; a half curved round needle carrying chromic gut is then passed from before back through the broad ligament, just below the ovarian vessels, and is carried behind the uterus, entering the wall on the postero-lateral aspect at the site selected and at the level at which the fundus rounds off from the body, emerging at a similar point on the opposite side of the uterus; the broad ligament of the opposite side is now grasped in the same manner and the needle passed from behind forward below the ovarian vessels through the left broad ligament; the operator, still holding the left broad ligament, now passes the needle from before backward through that point on the broad ligament that it has been ascertained will meet or correspond with a similar point on the opposite side; the needle is then entered into the postero-lateral aspect of the uterus on a line parallel with the suture line above, emerging at a similar point on the opposite side; the broad ligament is now pierced at a point corresponding with the point of exit from the left broad ligament. The suture may now be tightened, and if laid correctly the uterus will be swung forward, the tension on the round ligaments producing an anteversion, the sacro-uterine ligaments are made taut, and the posterior fornix elevated. If this is the case, the hold is relaxed and the posterior surface of the uterus sacrificed or denuded between the points of entrance and exit of the ligature. The suture is again tightened and tied as a mattress suture; the edges of the broad ligament are now sutured together, if approximated, and if not, are sutured to the adjacent uterine surface. In a certain number of cases the relaxation of the round ligaments is so great that, while this procedure supports the uterus and adnexa, they are not made sufficiently taut to draw the fundus far enough forward. When this

is the case, it is advisable to supplant the operation with the procedure recommended by Baldy, or some modification thereof, by fastening the round ligaments behind the uterus with sufficient tension to maintain an anteversion. Of 89 cases followed during two and a half years 73 per cent. were restored to health and 24 per cent. improved.

**The Surgery of Nephritis.**—Dr. H. Kümmell (*Arch. f. klin. Chir.*, Bd. 98, Hft. 3, 1912) believes that capsulotomy or nephrotomy may act as a life-saving measure in the anuria of scarlet fever and may prove equally beneficial in anuria resulting from a toxic nephritis, due to irritation set up by poisonous substances, such as sublimate, carbolic acid, or potassium chlorate. The chief benefit derived from the operative treatment of nephritis is in acute infectious cases with formation of numerous small abscesses in the cortical and medullary portions of the kidney. The onset of the disease is generally acute and attended with high fever, severe pains, and urinary tenesmus. Kümmell has operated in 28 of such cases, nephrectomy being done in 17 and nephrotomy in 11. Nephrotomy also produces improvement in cases of chronic nephritis characterized by severe pain over the kidney, usually on one side, as well as in chronic hemorrhagic nephritis with profuse hemorrhages, generally unilateral. During Bright's disease the operation often exerts a favorable effect upon the anuria, uremia and albuminuria, with improvement in the general condition of the patient.

**Bacillus Coli Infection of the Kidneys.**—Professor Barth (*Arch. f. klin. Chir.*, Bd. 98., Hft. 3) calls attention to the fact that bacillus coli infection alone may give rise to severe degenerative changes in the kidney. Acute coli pyelitis and pyelonephritis are particularly observed in women during the menstrual period, in the puerperium or in pregnancy. In severe cases the condition is often an alarming one, with high fever, marked tympanites, and decided tenderness over the renal area. Ureteral catheterization usually shows that both kidneys are affected. In pyelitis of pregnancy the pus and albumin usually disappear after delivery, but the excretion of bacilli coli in the urine generally continues. Barth also refers to the fact that coli pyelitis may be confounded with recent appendicitis, but ureteral catheterization usually enables one to make a correct diagnosis. The chronic form of coli infection may cause extensive destruction of the kidney without any decided symptoms. Even after the patient is apparently cured a bacteriuria or slight pyuria may persist, which may give rise to recurrences. Cases of mild acute coli pyelitis and pyelonephritis get well under rest in bed and the administration of urotropin, 8 grains, 3 times daily. If there is marked renal congestion with high fever, rigors and tenderness, ureteral catheterization may afford relief, while if symptoms of general septicemia manifest themselves nephrotomy is indicated. As regards chronic colypyonephritis the operation of choice is nephrectomy if the other kidney is in a good functioning condition, nephrotomy being reserved for cases in which the disease is bilateral.

**Operative Treatment of Tabetic Gastric Crises.**—Dr. E. Lotheissen (*Deut. Ztschr. f. Chir.*, Bd. 117, Hft. 1-2) has collated from the literature 36 cases in which Förster's operation of resection of the posterior nerve roots was performed for gastric crises in tabes, to which he adds three of his own. The mortality thus far has been about 14 per cent. To facilitate narcosis the previous administration of scopolamin is advisable. The outflow of too large an amount of cerebrospinal fluid may be prevented by maintaining the horizontal posture and abundant subcutaneous saline infusion. The dura should be accurately sutured. In four instances the operation was followed by paraplegia, although the results in general are very favorable, provided a sufficient number of nerve roots are resected.

**So-Called Perirenal Hematoma.**—Dr. Laewen (*Deut. Ztschr. f. Chir.*, Bd. 113, Hft. 3-4) reports two cases of profuse retroperitoneal hemorrhages about the kidneys. This condition is characterized by sudden violent pains in the renal area followed by syncope and stupor, with the formation of a fluctuating tumor in the abdomen. Peritonitis may develop at a later period. Smaller hemorrhages may be unattended with any decided symptoms. The temperature is usually increased; sometimes there is passage of blood in the stools. The site of the hemorrhage is ordinarily the space between the kidney and fibrous capsule and also the fatty capsule. Among the causes the chief are trauma and nephritis. As regards treatment, operation has given better results than expectant methods. After exposure of the kidney the hematoma is evacuated and the cavity drained. Though the bleeding point was not found in a number of cases a cure nevertheless resulted.

**Surgical Treatment of Peritoneal Tuberculosis.**—Dr. G. Bagozzi, cited in the *Wiener klin. Wochenschr.*, No. 39, 1912, considers laparotomy not only useful but indispensable in the treatment of tuberculosis of the peritoneum. The operation should be done in the subacute stage and not at the beginning of the disease or after complications in other organs have taken place. The beneficial influence of laparotomy is attributable to the fact that old exudates, which have lost their bactericidal action, are replaced by new ones abundant in germicidal substances.

**Treatment of Inflammatory Disease of the Adnexa.**—Dr. H. Toepfer (*Berlin. klin. Wochenschr.*, No. 36, 1912) thinks that inflammatory adnexal disease is to be treated conservatively unless large collections of pus have formed. Operation should not be resorted to until conservative methods, continued for a sufficient length of time, have proved unsuccessful. In the milder cases in which the uterus is movable and no firm adhesions exist, salpingectomy by the vaginal route is to be considered, while in the more severe the abdomen is to be opened, but the uterus and a portion of the ovary preserved if possible.

# Monthly Index of Surgery and Gynecology

- Abdominal and Pelvic Drainage (South. Med. Jour., Oct., 1912). E. P. Hogan, Birmingham, Ala.
- Abdominal Cesarean Section, Present Status of: When and How Should the Operation Be Performed (Phys. and Surg., Oct., 1912). R. Peterson, Ann Arbor, Mich.
- Abdominal Drainage (Med. Fortn., Oct. 10, 1912). C. Blickensderfer, Shawnee, Okla.
- Acapnia: Its Surgical Importance (Bost. M. and S. Jour., Sept. 26, 1912). F. J. Colton, Boston.
- Acute Phlegmonous Inflammation of the Large Intestine (An. of Surg., Oct., 1912). C. N. Dowd, New York.
- Adhesions of the Large Intestine, the Etiology of (Med. Rec., Oct. 12, 1912). G. B. Rhodes, Cincinnati.
- Anatomy of the Colon: A Frequent Surgical Annoyance (N. Y. Med. Jour., Oct. 12, 1912). J. D. Bloom, New Orleans.
- Anoci-Association, Method of, for Abdominal Operations in Selected Cases, with Nerve-Block a Distance (Med. Rec., Oct. 5, 1912). L. F. Watson, Oklahoma City.
- Bloodless Surgery of the Liver (Jour. A. M. A., Oct. 5, 1912). J. R. McDill, Milwaukee, Wis.
- Bloodvessel Anastomosis (Jour.-Lanc., Oct. 1, 1912). J. F. Corbett, Minneapolis.
- Bone Diseases in Children, Diagnosis of (Am. Jour. Obst., Oct., 1912). G. F. Little, Brooklyn, N. Y.
- Cancer of the Uterus, 212 Cases of, With Special Reference to Early Diagnosis (Am. Jour. Obst., Oct., 1912). G. Kamperman, Ann Arbor.
- Carcinoma-Oris or "Noma," Radical Surgery of Cases, With Report of a Case of Bilateral Infection Complicating Typhoid; Recovery (Jour. M. A. Ga., Oct., 1912). B. S. Moore, Atlanta, J. S. Clifford, Charlotte, N. C.
- Cecum, the, From a Surgical Standpoint (Surg., Gyn. and Obst., Oct., 1912). R. Russ, San Francisco.
- Cerebral Abscess, Symptomatology of, With Special Reference to Diagnosis and Indications for Surgical Intervention (N. Y. S. Jour. Med., Oct., 1912). L. Archambault, Albany.
- Chronic Intestinal Stasis (Calif. S. Jour. Med., Oct., 1912). J. Eaves, San Francisco.
- Coccydynia (Bost. M. and S. Jour., Oct. 8, 1912). C. G. Cumston, Boston.
- Colonic Dilatation (Congenital and Acquired) as a Factor in Chronic Intestinal Obstruction (Obstipation) (Proctol., Sept., 1912). S. G. Gant, New York.
- Colonic Obstipation, the Surgery of, Report of 13 Cases (Proctol., Sept., 1912). L. J. Hirschman, Detroit.
- Curative Effect of Normal Animal Serum in Suppurative Processes (Surg., Gyn. and Obst., Oct., 1912). E. Gergo, Budapest, Hungary.
- Dislocation of the Head of the Radius Complicated by Fracture of the Ulna (An. of Surg., Oct., 1912). A. P. C. Ashhurst, Philadelphia.
- Electrical Cauterization, Experimental Studies of the Action of, on Neoplasms (Med. Rec., Oct. 5, 1912). J. B. Squier, New York.
- Enlarged Cervical Lymph-Nodes in Children, Practical Points in the Treatment of (Bost. M. and S. Jour., Oct. 17, 1912). J. S. Stone, Boston.
- Extirpation of the Bladder for Malignant Disease (Med. Rec., Oct. 19, 1912). F. R. Hagner, Washington, D. C.
- Failures in Gallbladder Surgery (Jour. Okla. S. M. A., Oct., 1912). J. H. White, Muskogee, Okla.
- Fat, Surgical Aspects of (Bost. M. and S. Jour., Oct. 10, 1912). J. M. T. Finney, Baltimore.
- Female Ureter, Notes on the Anatomy of, and Methods of Repair of Injured Ureters (Jour.-Lanc., Oct. 15, 1912). M. C. Johnston, Aberdeen, S. D.
- Fibroid Tumors of the Uterus: Their Treatment (South. Med. Jour., Oct., 1912). J. H. Carter, Memphis, Tenn.
- Fracture of the Neck of the Femur, Treatment (Louisv. Mo. Jour., Med. and Surg., Oct., 1912). N. B. Owen, Louisville.
- Fractures, Simple, Treatment of, by Massage and Movement (Edinb. Med. Jour., Oct., 1912). P. Watson, Edinburgh.
- Freeing of Fragments Preliminary to the Operative Reduction of Fracture of the Femur (An. of Surg., Oct., 1912). J. C. A. Gerster, New York.
- Gas Bacillus Infection, a Consideration of, With Special Reference to Treatment (An. of Surg., Oct., 1912). W. C. Cramp, New York.
- Goiter, Surgical Notes on (Jour.-Lanc., Oct. 15, 1912). A. Schwyzer, St. Paul.
- Gradual Elimination of the Preventable Disaster from Surgery (South. Med. Jour., Oct., 1912). M. H. Richardson, Boston.
- Hip-Joint Disease, Treatment of (O. S. Med. Jour., Oct., 1912). L. G. Bowers, Dayton.
- Horse-Shoe Kidney, Clinical Importance of (Surg., Gyn. and Obst., Oct., 1912). D. N. Eisendrath, New York.
- Immunity with Reference to Some of its Relations to Surgery (Buf. Med. Jour., Oct., 1912). L. Hektoen, Chicago.
- Incontinence of Urine in Women, the Treatment of (Therap. Gaz., Oct., 1912). H. A. Kelly, Baltimore.
- Inguinal Hernia, Observations on (South. Med. Jour., Oct., 1912). L. Sexton, New Orleans.
- Injection Treatment of Hemorrhoids (Jour. Tenn. S. M. A., Oct., 1912). A. B. Cooke, Nashville.
- Intestinal Diverticula: Their Etiology and Pathogenesis (Surg., Gyn. and Obst., Oct., 1912). B. F. McGrath, Rochester, Minn.
- Intestinal Obstruction, the Diagnosis and Treatment of (N. Y. S. Jour. Med., Oct., 1912). C. A. McWilliams, New York.
- Intestinal Obstruction, With Report of Cases (Med. Rec., Sept. 28, 1912). C. P. Farnsworth, Chamberlain, S. Dak.
- Intestinal Resection in Strangulated Inguinal Hernia: Report of Cases (Jour. M. A. Ga., Oct., 1912). W. W. Battery, Augusta, Ga.
- Intracapsular Fractures of the Hip, the Treatment of (An. of Surg., Oct., 1912). G. G. Davis, Philadelphia.
- Laewen's Method of Anesthesia (Jour. Tenn. S. M. A., Oct., 1912). W. A. Bryan, Nashville.
- Lesions of the Female Pelvic Viscera, Carcinoma, Inflammations and Displacements, Comments on (Am. Jour. Surg., Oct., 1912). J. C. Taylor, New York.
- Lesions of the Right Iliac Fossa Other Than Appendicitis, the Recognition and Treatment of (An. of Surg., Oct., 1912). C. H. Frazier, Philadelphia.
- Mediastinal and Pericardial Infections in Relation to Emergency Abdominal Surgery (An. of Surg., Oct., 1912). F. Cobb, Boston.
- Medical Versus Surgical Means of Diagnosis and Treatment of Gastrointestinal Diseases (Buf. Med. Jour., Oct., 1912). A. Bassler, New York.
- Nephro-Ureterectomy in Tuberculosis of the Kidney (Surg., Gyn. and Obst., Oct., 1912). S. E. Tracy, Philadelphia.
- Osteomyelitis (Northw. Med. Oct., 1912). F. J. Fassett, Seattle, Wash.
- Paget's Disease of the Breast (Surg., Gyn. and Obst., Oct., 1912). F. E. McKenty, Montreal.
- Papillomata of the Bladder, the Diagnosis and Treatment of (Denv. Med. Times, Oct., 1912). O. S. Fowler, Denver.
- Patulous Anus, Its Clinical Significance (Proctol., Sept., 1912). A. J. Zobel, San Francisco.
- Pelvic Inflammatory Disease (West. Med. Rev., Oct., 1912). M. J. Ford, Omaha.
- Perinephritic Abscess: Report of Three Cases (Jour.-Lanc., Oct. 15, 1912). E. C. Robitschek, Minneapolis.
- Pest Bubo, Surgical Treatment of (N. Y. Med. Jour., Oct. 19, 1912). C. G. Roehr, Fort Pierce, Fla.
- Postoperative Treatment, Observations upon (Va. Med. Semi-Mo., Oct. 11, 1912). C. S. White, Washington, D. C.
- Preparatory and Postoperative Treatment of Carcinoma (No. Am. Jour. Homoeop., Oct., 1912). W. A. Guild, Des Moines.
- Principles Underlying the Surgical Treatment of Gastrointestinal Stasis Due to Causes Other than Stricture or Ulcerative Conditions (Surg., Gyn. and Obst., Oct., 1912). R. C. Coffey, Portland, Ore.
- Prolapse of the Uterus and Walls of the Vagina, Surgical Treatment of (Jour. A. M. A., Oct. 19, 1912). W. J. Mayo, Rochester, Minn.
- Pus Tubes and Pelvic Abscess (South. Med. Jour., Oct., 1912). F. D. Smythe, Memphis.
- Pulmonary Tuberculosis, Treatment of, With Artificial Pneumothorax (Jour. Ind. S. M. A., Oct. 15, 1912). W. A. Gekler, Rockville, Ind.
- Pyelitis, Treatment of (Surg., Gyn. and Obst., Oct., 1912). G. L. Hunner, Baltimore.
- Pylorectomy by the Basting-Stitch Method (Surg., Gyn. and Obst., Oct., 1912). H. H. Kerr, Washington, D. C.
- Radium in Gynecological Conditions (Canad. Pract., Oct., 1912). W. H. B. Aiken, F. C. Harrison, Toronto.
- Reconstruction of Ball-and-Socket Joints (Jour. A. M. A., Oct. 19, 1912). P. W. Roberts, New York.
- Regurgitation of Fluid from the Bladder to the Kidney During Ureteral Catheterization (Surg., Gyn. and Obst., Oct., 1912). F. R. Hagner, Washington, D. C.
- Shock, Surgical, Notes (Am. Jour. Surg., Oct., 1912). G. F. Lydston, Chicago.
- Simple Operation for Repair of the Female Perineum, Based on the Anatomy of the Parts (Jour. A. M. A., Sept. 28, 1912). W. B. Dorsett, St. Louis.
- Some Causes of Sterility and Impotence in the Male (Jour. A. M. A., Oct. 19, 1912). W. T. Belheld, Chicago.
- Sponge Compression in the Treatment of Mammary Abscess (Am. Jour. Surg., Oct., 1912). J. E. Dearden, New York.
- Sprain-Fracture as an Essential to the Occurrence of Dislocation, a Study of (An. of Surg., Oct., 1912). G. G. Ross, L. F. Stewart, Philadelphia.
- Subphrenic Abscess (Bost. M. and S. Jour., Sept. 26, 1912). A. C. Heffenger, Portsmouth, N. H.
- Suprapubic Prostatectomy, the Technic of (Surg., Gyn. and Obst., Oct., 1912). G. Kolischer, Chicago.
- Surgery of the Stomach (Alb. Med. An., Oct., 1912). C. W. L. Hacker, Albany.
- Surgical Psychoses (Med. Rec., Oct. 19, 1912). J. E. Mears, Philadelphia.
- Talipes Equinovarus of Infants, Use of Adhesive Plaster in, at Birth (Am. Jour. Obst., Oct., 1912). A. R. Allen, Carlisle, Pa.
- Three Step Operation in Tumors of the Sigmoid Colon (Proctol., Sept., 1912). J. P. Tuttle, New York.
- Thymol-Alcohol as a Disinfectant of the Field of Operation (Surg., Gyn. and Obst., Oct., 1912). H. P. Kuhn, Kansas City, Mo.
- Torsion of Tubal Enlargements, With Special Reference to Pyosalpinx (Am. Jour. Obst., Oct. 16, 1912). B. M. Anspach, Philadelphia.
- Trans-Duodenal Cholelithotomy for Stone in the Ampulla of Vater (An. of Surg., Oct., 1912). E. M. Williams, Patterson, La.
- Traumatic Arthritis of the Knee and its Effects (Canad. Med. Assoc. Jour., Oct., 1912). S. A. Smith, Liverpool, England.
- Tubal Sterilization, Technic of (Surg., Gyn. and Obst., Oct., 1912). L. W. Littig, Davenport, Ia.
- Tuberculosis of the Kidney (An. of Surg., Oct., 1912). T. Rovsing, Copenhagen, Denmark.
- Tuberculosis of Cervical Lymph-Nodes Cured by the Roentgen Ray (N. Y. Med. Jour., Oct. 12, 1912). M. Strunsky, New York.
- Uretero-Appendiceal Anastomosis (Surg., Gyn. and Obst., Oct., 1912). B. Kennedy, Indianapolis.
- Urinary Tuberculosis, the Results of the Early Diagnosis of (N. Y. S. Jour. Med., Oct., 1912). W. F. Braasch, Rochester, Minn.
- Use and Abuse of Certain Drugs in the Treatment of Shock, in its Relation to Emergency Surgery (Am. Jour. Surg., Oct., 1912). E. A. Vander Veer, Albany, N. Y.
- Vesical Calculi (Med. Rec., Sept. 28, 1912). L. Sexton, New Orleans.
- Wounds Inflicted by the Modern Rifle (Maryl. Med. Jour., Oct., 1912). R. G. Heiner, Annapolis, Md.

# THE INTERNATIONAL JOURNAL OF SURGERY

Vol. XXV

DECEMBER, 1912

No. 12

## Original Articles

### NEW TRANS-PELVIC LINES FOR DETERMINING DISPLACEMENT AT THE HIP.

By STEWART L. McCURDY, M.D., Pittsburgh, Pa.

There is no condition in surgery that causes more anxiety than injuries and diseases about the hip-joint when it is questionable whether there is a dislocation of recent or of congenital origin, and especially when a fracture of the neck of the femur is present with only a minor degree of deformity.

Nelaton's line is inaccurate in the most skilful hands. Its correctness depends upon an observation of the course of the tape around over the greater trochanter from the anterior superior iliac spine to the tuberosity of the ischium. An eye well trained in angles and proportions will see whether the tape is at a right angle with the long axis of the body and over the highest point of the trochanter. It is so easy, however, to have the trochanter vary an inch and the tape still appear to pass over the trochanteric eminence.

Bryant's triangle has fallen into disuse and is not mentioned in many of the modern surgeries.

The line I propose, which has served most satisfactorily in my practice, is one that crosses the pelvis through the spines of the pubic bones at right angles to the median line, the umbilicus serving as the vertical of the triangles. This line extends outward across the hip-joints, passing over or above the trochanteric eminences where the heads of the femurs are in the acetabulum and no fractures of the neck or displacements of the femur exist (Fig. 1).

I have examined several hundred patients by this method since determining its practical use, and it has permitted me to decide almost instantly whether displacement at the hip-joint existed. It is easily applied to patients of all ages. The patient with hip injury is invariably lying on the back, just the

correct position for its application, while Nelaton's line is not so readily applied in this position.

As is well known, the acuteness of the angle of the neck of the femur increases from childhood up to adult manhood. In adult life the trochanteric eminences are always at least one inch below the transpubic line. It is at this age that we find the greatest number of injuries with upward displacement of the trochanter, so that if this bone should

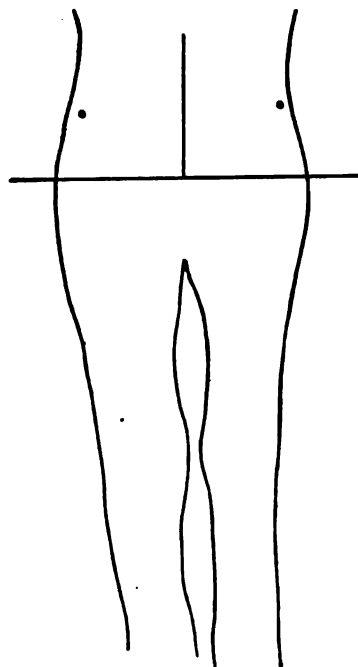


Fig. 1.

be even to the line, fracture or dislocation must be suspected. If, however, it is above, there can be no question that an injury of some sort with hip displacement exists.

As age advances, the angle of the neck of the femur diminishes in acuteness and the trochanter ascends.

In two persons over eighty years recently examined for hip injury, the normal hip showed the trochanteric eminence immediately under the pubic line, but on the injured side the trochanter was one

inch above in one case and one and three-fourths above in the other, showing unmistakable fracture of the neck in both instances (Fig. 2).

A young man aged twenty-five years and another aged seventeen years showed a trochanter one and one-half inches above the line on the injured side and slightly below on the normal side (Fig. 3).

I submit three radiograms for your inspection: One of congenital dislocation and two of hip-joint disease in various degrees of destruction. The line drawn across these pictures bisecting the pubic spines invariably crosses the trochanteric eminences

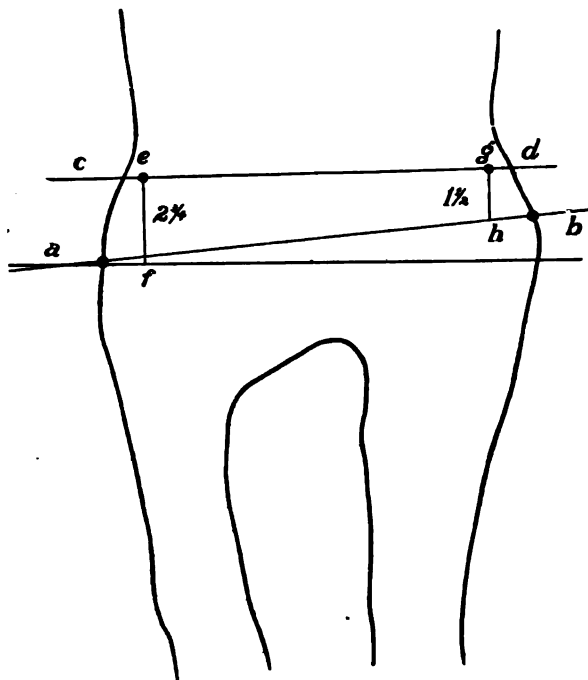


Fig. 2.

in the well hips or those without displacement, and in the displaced hips the trochanters are always above, and in one, as much as two and one-half inches.

There is another way in which the trochanteric line may be used to verify the conclusion found by the method above described.

A tape measure, ruler or string, is passed across the pelvis so that the ends cross the trochanteric eminences and are held in this position by an assistant, or a line may be made across the abdomen from one trochanter to the other. Care must be taken that the most prominent points of the trochanters are found.

The anterior superior iliac spines are now located and marked. Or a line may be made across the pelvis over the spines, if desired. If these lines are

parallel no displacement at the hip-joint exists. If, however, the lines converge, displacement of some sort will be found on the side where they are closer. The amount of displacement is now determined from the spines to the points on the trochanteric line immediately below.

The illustration from a to b represents the trans-trochanteric line; from c to d the trans-spinous line. From e to f in the illustration is two and three-quarter inches, and from g to h one and one-half inches, showing that there is a displacement upward or shortening on the right side of one and one-fourth inches. (See Figs. 2 and 3.)

I do not think it necessary to report many individual cases further than to say that this method has been in use for some time, and in every instance radiograms and other methods of measurement have confirmed this very rapid and simple plan.

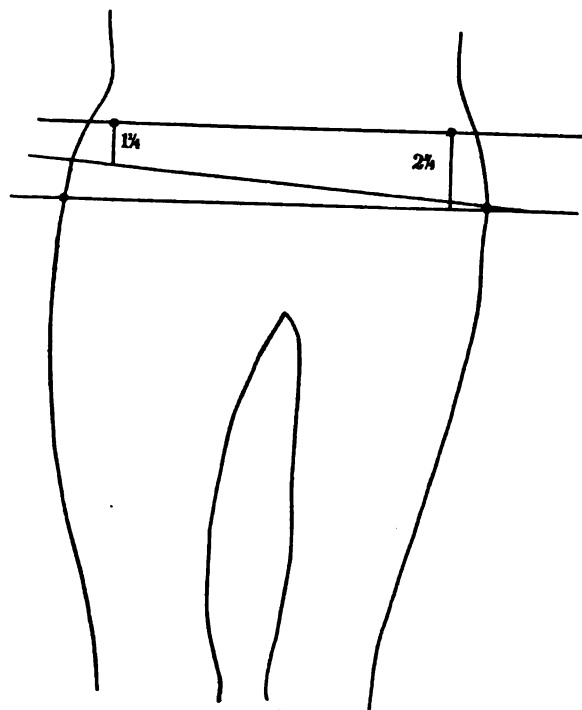


Fig. 3.

It must recommend itself to all because of its simplicity and because no appliances are required other than those found in the most humble home.

A married woman, aged twenty-four years, came to me with an ankylosed right hip-joint following gonorrhea, with secondary infection of this joint. My first measurement showed the right leg to be two inches short. Upon further examination about the trochanter I concluded that no dislocation existed, and I was satisfied that no destruction of the continuity of the bones from the pelvis to the mal-



leolus had taken place. It occurred to me to place the left femur at the same angle to the pelvis as the right, and then make comparative measure-

In a recent case under treatment with hip-joint disease, after the acute pain of abscess formation had passed away for many months and no acute

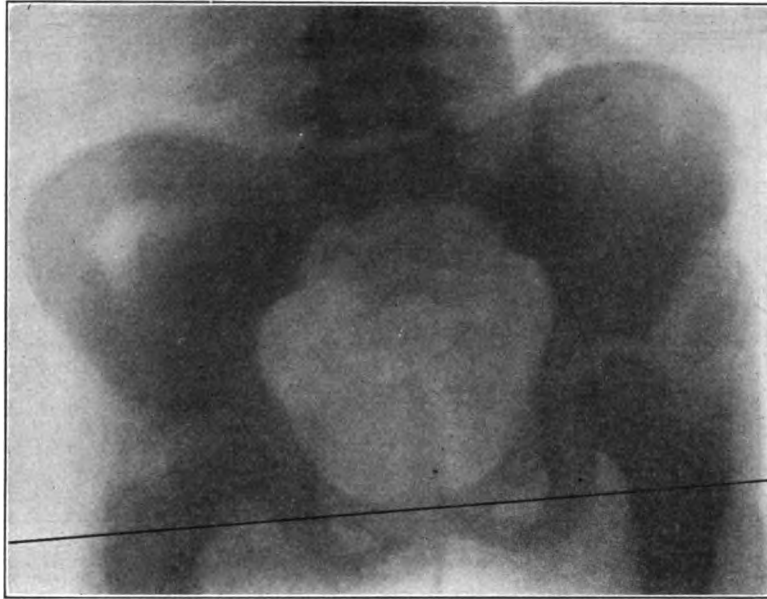


FIG. 4. Tubercular hip, without displacement, showing transpubic line bisecting trochanteric eminence.

ments of the two sides. To my surprise no variation in length existed. I was led to the conclusion that in every case where measurements are made

symptoms were present, in which I had stated that the head of the bone was still in the acetabulum, a doctor of considerable prominence measured the

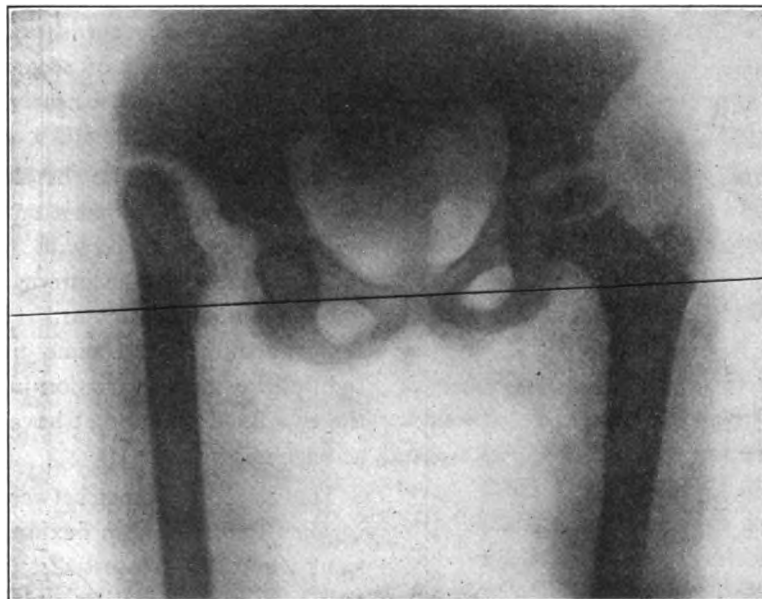


FIG. 5. Old cured tubercular hip. Transpubic line bisects normal trochanteric eminence, but the trochanter is two inches above on the diseased side.

without regard to the angle of the femur to the pelvis, error must follow. The amount depends entirely upon the amount of flexion and adduction or other angular variation.

legs and reported that there was one inch of actual shortening. Later I saw the case and was convinced by my method of measurement that no actual shortening existed, but that the doctor had

made a mistake because he did not place the two thighs at the same angle with the pelvis while measuring.

the anterior superior spine to the internal condyle two inches, while the arc through which the femur passed was no greater than that found in many

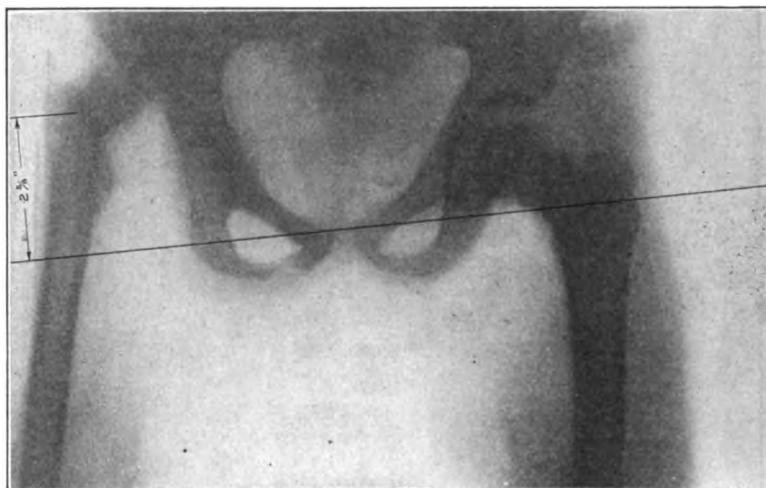


FIG. 6. Congenital dislocation. Trochanter on diseased side two and five-eighths inches above transpubic line and almost as high as the trans-spinous line.

Having at my disposal about 100 disarticulated skeletons, I made a study of the relationship exist-

ing between the femur and the pelvis, and found that it was possible to increase the distance from cases of deformity at this joint. The models used included the innominate bone and a femur of the same skeleton in every instance, the bones being held in articulation with rubber cords, as shown. Several methods of holding these bones in position were used, but the cords or rubber bands proved to be the best means of securing a joint permitting a range of motion most nearly approaching the normal.



Fig. 7.

If you will examine the skeletons (Figs. 7 and 8) you will observe that a tape is nailed to the anterior superior spine, with the free end passing under a staple on the internal aspect of the internal condyle of the femur. If you now swing the femur about, at the same time keeping the tape tightly drawn, the variation in the distance between the two fixed points that have been selected will be at once observed.

The shortest distance between the two fixed points is when the thigh is in flexion, abduction, and eversion, while the greatest distance is in extreme extension, slight adduction and inversion.

Flexing the femur to an angle of 44 degrees and abducting to an angle of 45 degrees (Fig. 7), the distance is found to be 19 inches, including the shortest distance between these two points that would likely be present in any person.

If now the femur is extended to a plane with the pelvis, and adducted to 6 degrees, the distance will be found to be 21 inches, or a difference of 2 inches.



Fig. 8.

The same variation is observed whether the measurements are made upon the skeleton or a living subject (Fig. 8).

### INDICATIONS FOR PUBIOTOMY.\*

By A. J. RONGY, M.D., New York.

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In reviewing the literature of obstetrics of the past ten years, one is impressed with the fact that hardly anything new has been brought forth during this time. The only advance made has been in the establishment of a definite operative procedure in a given case of dystocia; in other words, it is apparent that our methods of procedure have become, so to speak, standardized.

The field of contracted pelvis is one most difficult to master. No matter how experienced an obstetrician may be, he still will at times be unable to determine whether or not a given case of contracted pelvis will terminate in a spontaneous labor.

We have now come to understand that normal labor does not actually depend wholly upon the size of the pelvis, but that the fetal head plays an important role, and that it is the relation of the size of the head to the pelvis which will determine whether labor be normal or abnormal. Hence a given pelvis may permit the passage of a small fetal head during one labor, while during the next pregnancy, should the child's head be larger, labor will be complicated. And this is the main reason why we may err in the prognosis of our cases. We have means of measuring the pelvis, we can judge the amount of pain, but we lack the knowledge of the actual size of the fetal head, and therefore are unable to state before labor actually commences, whether or not the head will engage.

Clinically, contracted pelvises are divided into three varieties: First, Absolutely contracted; second, moderately contracted; third, slightly contracted; or should the subdivision be made according to the measurement of the internal conjugate, it would be, first, pelvis that measure below  $7\frac{1}{2}$  cm.; second, pelvis that measure  $7\frac{1}{2}$  to 10 cm., and, third, pelvis that measure 10 to 12 cm. We must, however, differentiate between the conjugate of the justo-minor pelvis and the simple flat pelvis. In the justo-minor variety we find that the diagonal conjugate measures one-half centimeter more than in the simple flat variety.

Heretofore, our only concern regarding the measurement of the pelvis was the inlet, and no sooner had we found this normal, than we considered the case normal. Of late, however, we have observed that not only may we encounter a good deal of trouble in the inlet, but that the outlet of the pelvis may complicate labor to a certain extent; that labor may proceed normally to a point where the bi-parietal diameter reaches the outlet, and there, if the measurements of the outlet are not normal, the progress of the head will be arrested and artificial means of delivery may be necessary. Klein, as the result of his recent studies of the outlet of the pelvis, draws an imaginary line between the two ischial tuberosities, dividing the outlet into an anterior and a posterior segment, the latter being the larger of the two. If for any reason the pubic arch is flattened or is narrow, making the anterior segment smaller, the head will naturally have to be born at the expense of the posterior segment, and thus labor may not only be retarded but the soft parts

\* Read before the Bronx Medical Society, November 16, 1912.

may be badly lacerated. In order that labor may terminate normally, both the measurements of the inlet and outlet must be normal in relation to that particular head.

As a general rule, we may say that if the uterine contractions are normal and the position of the fetal head in proper relation to the pelvis, and if no progress is made, something is wrong, and we must, therefore, consider our case carefully and find the cause for the lack of progress on the part of the fetal head. However, in cases of flat pelvis, labor proceeds very slowly; at times little or no progress is made for hours, because the moulding the fetal head must undergo is great. But once the head is engaged and it attempts to mould and accommodate itself to the pelvis, we must be very conservative and wait a sufficient time, so that a proper test for labor is given. In primiparæ our usual test for labor is to wait twenty-four hours, and if at the end of this time no progress is made, we may consider interference.

Before going into detail about the various methods of delivery, I wish to say a few words regarding induction of labor before term. I believe—and it is the method I usually follow out in cases of moderately and slightly contracted pelves—if the patients present themselves early enough—induction of labor in the thirty-sixth week of pregnancy is not only safe as far as the mother is concerned, but the fetal mortality is practically nil. Induction of labor before the thirty-sixth week is accompanied by a large fetal mortality. We are, therefore, not justified in recommending it to patients who have a history of having given birth to dead children due to instrumentation or other mechanical manipulations. Other operative procedures must be resorted to, and the only methods we have at present at our command for delivery of a living child in cases of contracted pelvis, are, first, high forceps, second, Cesarean section, and third, pubiotomy. I eliminate craniotomy, because I feel that no obstetrician is justified in performing it on a living child when the mother is in good condition. I feel that it is the duty of the obstetrician to consider the right of the child in every instance, except when the mother's condition does not permit of such consideration. Personally I feel that I would withdraw from a case in which it was insisted that I perform a craniotomy on a living child by patient or the family, on account of the mother's refusal to take

the slight additional risk which accompanies any operative procedure. Neither the mother and the family, nor the physician has this right to sacrifice carelessly a healthy viable child.

High forceps delivery is an operation that we were fully justified in performing in the days when obstetrical surgery was not fully developed. Then asepsis and antisepsis were not well understood and it was life-saving procedure for the mother, for if she were not relieved, she would have died from exhaustion and sepsis. In the light of our present knowledge, it is hardly a justifiable operation.

Viewing it from a purely surgical standpoint, we know of no other surgical measure where the same principles are carried out. We know of no procedure in surgery where it is attempted to pull through a fetal head of distinctly greater dimension than that of the cavity. If such an emergency arises in the course of an operation, either the opening is enlarged or the mass is made smaller. Mere force, as a means of accomplishing it, is never brought into play, and no surgeon would ever countenance its use.

Obstetrically, it should be our aim not only to save the mother and child, but we should be careful to use means that will lessen the morbidity of the mother. Somehow, the question of morbidity in obstetrics has not been given the amount of attention it deserves. The laceration of the cervix or perineum is dismissed lightly since it is so readily stitched. One gives very little thought to the final results of this operation and to its effects upon the health of the mother. The more one is surgically trained in obstetrics, the more convinced is he that all operations that tend to mutilate the soft parts of the mother must be avoided.

To practice modern obstetrics, three cardinal principles must be kept constantly in mind before treatment of a given case of dystocia is undertaken: First, the effect of the operation upon the mother; second, the effect upon the child; third, the operation from a purely technical and surgical standpoint. In the study of the high forceps operation, we fail to find any of the above principles considered. Its effect upon the mother is familiar to all who do it. The injury to the lower segment of the uterus is well known; next to version, the uterus is more frequently ruptured or perforated by the forceps during this mode of delivery than during any other obstetric procedure. The injury to

the posterior vaginal wall and the perineum most often is so extensive that an attempt at repair is futile.

Practically speaking, all the plastic operations on the vaginal vault are made necessary through child birth. If obstetrics is practiced scientifically, the more extensive lacerations may be avoided, but if it is practiced indifferently, the result is that our gynecological clinics become filled with suffering womanhood. While it may be foreign to our subject, yet it may not be amiss to state that I have yet to see a patient upon whom a plastic operation on the vaginal vault had been performed completely cured of all the symptoms of which she complained and which were due to these lacerations. This statement may be looked upon with disfavor by those practicing gynecology, but I feel it is true, nevertheless. It seems to me that the hospital classification of cured and uncured patients does not in a great number of cases coincide with the views of the patients in this respect.

The effect of high forceps on the child is too well known and hardly needs discussion. A great number are still born; others, while delivered alive, survive but a few hours or days. They usually die either from a fractured skull or from intracranial hemorrhage produced by the compression of the blades. It is difficult to estimate the actual fetal mortality caused by high forceps delivery, as the majority of these operations are performed in private dwellings. Our health boards do not require a proper and scientific classification as to the cause of death. As a rule, the vague statement of "forceps" or "instruments" is a sufficient cause of death. No attempt is made to find out the kind of forceps that were used, whether high, medium or low, and therefore nothing could be gained by inspecting the vital statistics. It would be interesting to know the actual percentage of still born children that result from the use of high forceps. I am sure if such data were compiled and presented to the profession, that this operation would show a high percentage of mortality.

Abdominal Cesarean section, in indicated cases, is an ideal operation when it is performed early, before the patient becomes exhausted from labor, and when the general condition is good. Patients who have been examined very frequently by either midwife or physician, cases in which the membranes have been ruptured for some time, cases in

which attempts at delivery have been made and failed, are not ideal subjects for this operation. Its mortality in cases of this nature is very high, and puts it in the light of an unfavorable surgical procedure. The mortality of Cesarean section in obstetrically clean cases, and during the early stage of labor, is very small. On the other hand, the mortality in the cases enumerated above is very high, and, therefore, it should not be performed if it can possibly be avoided, or if some other surgical procedure can be substituted for it.

We are very often called to see a patient in an emergency, with the history that she has been in labor for some time, that the membranes have already ruptured, and that attempts at delivery by forceps had been made and failed, the child being viable and in good condition. In such cases after a test of delivery by forceps is made and it does not seem that it will be successfully completed, I believe that Cesarean section is contraindicated, and that delivery by pubiotomy is the only proper procedure. In other words, pubiotomy is the only operation in borderline cases that have been mismanaged or misjudged. It adds but little additional injury to the mother, it lessens fetal mortality, and is, therefore, undertaken in the interest of the child. The patient, however, should always have had a strong test for labor, the cervix should be dilated, the head should be somewhat moulded, and forceps should have been attempted, and if then the child is still alive, pubiotomy should be performed.

Up to 1905 pubiotomy was very seldom performed in this country, and up to that time only 42 cases were reported in all the literature. Since then it has been employed in clinics in both Europe and America more widely, with the result that many children were saved with but little additional risk to the mother. The technic of Döderlein has been followed in part in these cases. A small incision is made over the upper border of the os pubis just internal to the pubic spine. This incision is just large enough to admit the tip of one finger. The carrier is introduced through this opening behind the posterior surface of the bone, emerging at its lower border between the labia majora and minora. The index finger of the left hand is introduced into the vagina to guide the end of the carrier, at the same time making it hug the bone. The Gigli saw is then carried up, and the bone sawed through from within out. After the division of the bone

the child is extracted by forceps. If the patient is a primipara, I perform an episiotomy on the opposite side so as to facilitate the delivery and also to prevent a communicating tear of the vagina and the pubiotomy wound. No attempt is made to unite the cut ends of the bone. The separation of the ends obtained in my cases was three-quarters of an inch in the first cases, and over two inches in the last.

My experience with this operation consists of seven cases, and I shall here give in detail a report of same:

Case I. Mrs. B. S., Russian, aged twenty-five years, primipara, last menstruation January 15, 1911, came to engage me in the sixth month of pregnancy. On examination the diagnosis of justo-minor pelvis was established. The pelvic measurements were, interspinous, 24; intercrestal, 26; external conjugate, 21; diagonal conjugate, 10. She was put on Prowchnic's diet and instructed to call every two weeks for observation, and was advised to have labor induced in the thirty-seventh week, but refused.

Labor pains began about 5 a. m., October 12th. She was admitted to the Jewish Maternity Hospital about 8.30 a. m., having strong pains every fifteen or twenty minutes. On examination, at 10 a. m., the cervix was dilated two fingers, and the membranes ruptured. At 5 p. m., the cervix was two-thirds dilated and the head in first position attempting to engage. The pains at this time were very strong and almost continuous, the uterus almost in a tonic state of contraction. Morphin was given hypodermically and patient rested for about two hours. At 9 p. m., the cervix was fully dilated, the head still high in the pelvis. At midnight another dose of morphin was given, hoping that a short interval of rest would bring out more forcible uterine contractions, but with no effect whatsoever. At 3.30 a. m., after the cervix was fully dilated for six hours, the pains occurring every two to five minutes and the fetal heart suddenly becoming weaker, immediate delivery by pubiotomy was decided upon and a living child weighing six and a half pounds was extracted.

There were no complications during the operation and delivery. Bleeding from the wound was very slight. The vagina was packed as a routine measure. The separation between the cut ends of the bone was about two centimeters. The wound

was dressed and a strip of adhesive plaster across the pelvis applied to prevent any undue motion and separation of the cut ends of the bone.

Convalescence was normal. The patient was out of bed on the fifteenth day, and mother and child left the hospital on the eighteenth day. There was no difficulty whatever in walking. The fetal measurements were as follows: Length, 50; suboccipitobregmatic, 32; occipitomenal, 13; occipitofrontal, 11.

The reason delivery by forceps was not tried at first in this case was mainly on account of the sudden changes in the fetal heart. I feared that the additional injury to the child would possibly cause it to be still born.

Case II. Mrs. F. K., patient of Dr. W. Narine, primipara, commenced to have labor pains Thursday, October 12th. The pains were irregular and weak, but Friday became stronger. At 4 a. m. Saturday, the cervix was fully dilated; at 9 a. m., after five hours of active labor pains and no progress, artificial delivery by forceps was decided upon. After moderate pulling by the attending physicians, no progress was made. At this juncture I was summoned to see the patient. On examination the cervix was found fully dilated, the head in the left occipital anterior position wedged in at the inlet, the fetal heart good, the mother beginning to show signs of exhaustion. I attempted to deliver her with forceps, but after a trial of about ten minutes it became evident that it could not be effected. The fetal heart sounds still being good, I suggested that the only possible method of delivering a living child was by pubiotomy. The family physicians having concurred, the patient was transferred to the Jewish Maternity Hospital. Pubiotomy was performed and a living child weighing eight pounds four ounces was delivered.

The measurements were as follows: Mother, interspinous, 21.5; intercrestal, 26; external oblique, 20.5; external conjugate, 19.5; diagonal conjugate, 10. Child: Biparietal, 9.5; suboccipitobregmatic, 9.5; suboccipitobregmatic circumference, 34; occipitofrontal, 35; length, 52.

The patient underwent a mild febrile convalescence, but was out of bed on the seventeenth day, and mother and baby left the hospital at the end of three weeks.

Case III. Mrs. C. S., patient of Dr. I. I. Bernstein, twenty-eight years old, II-para. First labor,

three and one-half years before, normal, the child weighing five and one-half pounds (mother's statement). The membranes ruptured November 3, at 6 p. m.; one hour later labor pains set in which lasted during the night. The face was presenting. At 8 p. m., after the cervix was fully dilated, delivery by forceps was attempted, but they slipped. A few more applications were made, but with the same result. At this time I was asked to see the patient.

On examination I found the cervix fully dilated, but beginning to be edematous, the face presenting in the transverse diameter of the pelvis, the head large and above the brim, but the child still viable. The patient showed signs of exhaustion; pulse 120 to 130, temperature 101 degrees F. She was transferred to the Jewish Maternity Hospital for pubic section. A living child weighing eight pounds twelve ounces was delivered. It was evident that the head and neck of the child were severely injured by the many applications of the forceps.

The puerperium ran a septic course, the temperature ranging between 102 and 106 degrees F. for fourteen days. The patient finally began to improve and was discharged from the hospital at the end of twenty-six days. A large hematoma of the head and neck developed in the child, which died of asphyxia on the fifth day. The patient had a flat pelvis, but not markedly so. The fetal head was rather bony and well developed.

The child's measurements were: Length, 51; occipitofrontal, 36; suboccipitobregmatic circumference, 34; bisacromial, 41; biparietal, 10; suboccipitobregmatic, 9.5; occipitomenta, 13.5; occipitofrontal, 12.5; bisacromial, 13.5.

In this patient it was the over-development of the child that caused the dystocia, as evidenced by the normal course of the previous labor when the child was small.

Case IV. Pubiotomy. Mrs. A. S., patient of Dr. I. Ritter, aged thirty-four, I-para. Patient began to have labor pains on January 3rd, which were rather irregular and weak. During the 4th, the membranes ruptured. On the same day, about 8 p. m., pains became stronger and came more often. The breech was presenting and the cervix was fully dilated. January 5th, during the entire day, notwithstanding the strong pains she had, there was very little progress. Patient began to show signs of exhaustion toward evening, the pulse rose from 120 to 130, the temperature 101.

I was asked to see patient about 8 p. m. of the same evening, and on examination I found the breech presenting, the child rather large; the pelvis was contracted and of the justo-minor type; diagonal conjugate measured 10 plus. It was evident from external examination that the child was large and out of proportion to the pelvis. The fetal heart sounds were good. The chances of delivering a living child under these conditions were apparently improbable. In the interest of the child pubiotomy was suggested as a method of procedure, and with but little additional risk to the mother. The attending physician and the family concurring, the patient was removed to the Jewish Maternity Hospital. The patient was prepared for delivery and a Gigli saw introduced as a prophylactic measure, and the legs of the child brought down. It was very evident from the appearance of the lower extremities that the child was large and well developed and that extraction through a contracted pelvis was impossible. The fetal heart still being good, pubic section was performed, and a living child, weighing 8 pounds 10½ ounces, was delivered.

The separation of the cut ends of the bones was almost two inches, giving just sufficient space to deliver the head. The child was born asphyxiated, but was finally resuscitated at the end of one-half hour.

Mother and baby were out of the hospital at the end of twenty-six days.

Case V. A. C., aged twenty-three, II-para. First labor instrumental; child alive. Admitted to the hospital April 2, 1912, at 12.45 a. m. Cervix three fingers dilated; head not engaged. Temperature, 100; pulse, 112; respiration, 24. At 4.30 a. m., the cervix was fully dilated, patient had severe pains, but the head was not engaged. At 7.20, ¼ of a grain of morphin was given; at 9.30 a. m., she was taken to the operating room for delivery. The forceps were applied by Dr. I. S. Tunick, but no progress was made. At 9.50 the forceps was tried by me, but it was evident that the fetal head was too large to pass through and pubic section was decided upon. Delivery was completed with forceps. The separation of the cut edges of the bone was about 3 cm. The child lived four hours and apparently died from injury to the head produced by the forceps. The mother made an uneventful recovery and was discharged April 21st.

Case VI. Mrs. D. B., patient of Dr. N. O. Ratnoff, aged twenty-five, II-para. First child deliv-



ered by version, still born. Admitted to the hospital October 1, 1912, after being in labor twenty-four hours; cervix fully dilated, membranes ruptured. Patient had strong labor pains during the entire day and night, but the head attempted to engage only slightly. October 2nd, 1 p. m., delivery by forceps was attempted. After a trial by Dr. Ratnoff and myself for about twenty-five minutes no progress was made. The mother was very anxious for a living child, so pubic section was decided upon.

The cut edges of the bone separated fully 6 cm., and delivery was accomplished by forceps. The mother and child were discharged from the hospital October 18th, both in good condition.

Case VII. Mrs. B. F., patient of Dr. M. O. Magid, aged thirty-nine, III-para. First labor instrumental, child still born. Second labor premature in the eighth month, child still born. Admitted to the hospital November 11, 1912, at 10.30 a. m., having been in labor nineteen hours. Cervix fully dilated, membranes ruptured; head not engaged. At 11.30 a. m., delivery by forceps was attempted, but no progress was made and in the interest of the child pubiotomy was decided upon. Delivery was accomplished by forceps. The cut edges of the bone separated 3 cm. The mother and child were discharged November 27th.

In conclusion I wish to state that while my results from this operation were quite favorable, still I feel that it must be performed in cases where there is no other alternative. It must also be performed very carefully, and if one is not trained in gynecological surgery it should not be undertaken. The injuries to the soft parts and to the bladder and urethra may be quite extensive. The sacro-iliac joint may be injured, and if this possibility is not borne in mind, this will result in permanent disability. Hemorrhage may be profuse and at times uncontrollable. Communicating vaginal tears take place in a moderate number of cases. While I did not encounter these complications, still one must be ready to meet and treat them properly. Pubiotomy should never be the operation of choice; it is always one of emergency. In cases that have been misjudged and neglected, with the child still viable, it is the only method of procedure, and only an experienced obstetrician should undertake its performance.

Under these circumstances, pubiotomy has a defi-

nite field, and does not compete with either Cesarean section or high forceps delivery. In cases where Cesarean section is indicated, pubiotomy is contra-indicated, and vice versa.

Finally, I believe that the time has come when obstetrics has reached the stage where mutilating operations upon the mother with the almost inevitable results of bringing forth a still born child have no place, and such practices should if possible be avoided.

154 Henry street.

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### **REPORT OF THE COMMISSION OF THE MEDICAL SOCIETY OF PENNSYLVANIA ON END RESULTS OF FRACTURES OF THE FEMUR.**

By W. L. ESTES, M.D., South Bethlehem.

The chairman wishes, in behalf of the commission, to make the following report:

1. Total number of cases, 788.
2. Ages: Below ten years, 98 cases; between ten and twenty years, 67 cases; between twenty and fifty years, 138 cases; between fifty and seventy years, 56 cases; between seventy and ninety years, 13 cases; between ninety and one hundred years, 1 case; cases not mentioned, 394.
3. Occupation: Working people, 219 cases; cases not noted, 491.
4. Cause of fracture: Direct violence, 130 cases; indirect violence, 638 cases. (Some cases are not reported. Probably many reported misunderstood.)
5. Seat of fracture: In 303 cases this is noted; of these, upper third, 68 cases; middle third, 163 cases; lower third, 72 cases.
6. Kind of fractures: Simple, 732 cases; compound, 27 cases; compound comminuted, 8 cases; complicated and multiple, 12 cases.
7. Amount of shortening at time of injury (admission): Of 598 cases noted, average shortening before reduction was 1.38 inches.
8. Method of treatment: Of 440 cases noted, some form of Buck's extension, 190 cases; Scudder's splints, 24 cases; plaster-of-Paris, 47 cases; long lateral splints, 34 cases; sand bags, 35 cases; Hodgens' apparatus, 3 cases; double inclined plane, 6 cases; open method, 78 cases; various forms of splint, 12 cases; no dressing, 1 case.

9. Anesthetic: Yes, 142 cases; no, 194 cases; 410 cases not noted.

10. Extension, average amount of weight used: Of 238 cases reported, 14 lbs. was the average.

11. Effects of reduction on shortening as determined by measurements: Recorded in only a few cases.

12. Amount of shortening—after reduction, average 1 inch; first change of dressing,  $\frac{3}{4}$  inch; at end of treatment,  $\frac{1}{2}$  inch.

13. Length of time patient was in bed: Of 322 cases reported, average a fraction less than 8.2 weeks.

14. Length of time patient absent from work: Of 212 cases reported, average a fraction less than 2.7 months.

15. Length of time crutches, canes or other aids in walking were used: Of 207 cases reported, average a fraction less than 8 weeks. (NOTE: No. 15 was understood differently by various reporters, the answers varied very greatly.)

16. Presence or absence of limp: Of 337 cases reported, 256 limped.

17. Inversion or eversion of foot or tilting of pelvis, causing serious axial displacement: Of 648 cases reported, 528 cases had no axial displacement, no eversion or inversion.

18. Large development of callus, producing any serious inconvenience in any way: Of 585 cases reported, 512 cases had no incommoding callus; 56 cases had callus which produced some disturbance.

19. How measurements were taken: Of 212 cases reported, 191 were measured from anterior superior spine to internal malleolus; anterior superior spine to floor, 1 case; anterior superior spine to tubercle of tibia, 18 cases.

20. The amount of disability as estimated by (a) endurance—of 613 cases reported, in 163 endurance good; (b) pain—of 624 cases reported, 25 had pain; (c) swelling of foot or leg—of 576 cases reported, 27 had swelling; (d) interference with joint function—of 635 cases reported, 26 had joint interference.

21. Mortality: 27 deaths, or 3.69 per cent. Causes of death: Pneumonia, 4; shock, 5 (aged); shock and delirium tremens, 1 (aged 64 years); delirium tremens, 4 (aged); various intercurrent diseases, 10; uremia, 1; hyperthyroidism, 1; exhaustion and shock, 1.

22. Was x-ray used: Of 274 cases reported,

x-ray was used in 147. What it showed as to results: In 83 cases only was good apposition reported without angulation. Many reporters failed to note this point, however.

An analysis of the cases shows that the greatest number of these fractures occur in patients between twenty and fifty years of age, the next largest number below ten years of age, and the third largest between ten and twenty years of age. It is evident that fractures of the shaft of the femur are injuries which are most common in youth and adult life.

Working people are far more subject to these fractures than any other class.

Indirect violence causes about five times as many cases as direct violence.

The middle region of the bone is the part which is oftenest fractured. The lower third comes next, and the upper third only a little less often.

Simple fractures are far more common than the compound and complicated ones.

The average shortening at the time of injury, that is, at the time of admission when the case is first seen, is 1.38 inches.

An anesthetic was not used in reducing the majority of cases.

By far the largest number were treated by some method of extension. Some form of Buck's extension or a modification of this method is the one which is most frequently employed. The average amount of weight used for traction in these methods is fourteen pounds. (This I think is entirely too little, considering the fact that most of these cases were in adults.)

The average length of time the patients spent in bed from these fractures was 8.2 weeks, and the length of time they were absent from work was 2.7 months. This is a result obtained from reports of 212 cases. It seems a very short time, and I believe many reporters failed to understand this question and counted this period as the length of time in bed or under immediate treatment, rather than of total disability. This is also true in regard to the question of length of time that crutches, canes or other aids to walking were used; 207 cases were reported with an average of a fraction less than 8 weeks.

Of 337 cases reported, 256 of the patients limped, showing that in the majority of these cases some limp persisted for a considerable time.

In regard to inversion or eversion of the foot or

tilting of the pelvis, causing serious axial displacement, 648 cases were reported, and of these in 119 there was axial displacement, inversion or eversion, or in other words, about one fifth, or 20 per cent.

Of the 585 cases reported in regard to large development of callus, in 56 there was noted disturbance caused by an excessive amount of callus, or about 10 per cent.

There were 212 cases reported in regard to the manner in which measurement was taken. Of these 191 were measured from the anterior superior spine to the internal malleolus. It seems evident that this is the favorite measurement. The chairman again calls attention to the fact that the usual method of taking this measurement is inaccurate. It is also important always to check up the result by some other measurement.

The amount of disability as estimated by (a) endurance, of 613 cases reported, only 163 had good endurance, a little over 20 per cent.; (b) pain, of 624 cases reported, 25 had persistent pain; (c) swelling of foot or leg, of 576 cases reported, 27 had swelling, that is, persistent swelling; (d) interference with joint function, of 635 cases reported, 26 had joint interference. This, of course, refers to persistent interference because it almost always happens that some slight interference does occur soon after the splints are removed.

The mortality given is 3.69 per cent. I think that this is a mistake due to incomplete reports and lack of continuous observation; for the study of reports which are given by the most accurate and painstaking observers shows that the percentage of mortality runs from six to eight per cent. I should say 6.5 per cent. would be the more accurate one, taking all cases.

Pneumonia, shock in the aged, shock and delirium tremens are the most frequent causes of death amongst the cases reported.

Out of all these cases in only 147 was it stated that x-rays were used. It is evident that surgeons do not as a matter of routine have their cases photographed by the x-ray. While every one must appreciate the fact that this in a large number of cases is impracticable in the country, yet it is a matter of growing importance and the chairman believes that it would be best if surgeons would make a special effort to have a proper x-ray picture made of their cases of fractures of the femur.

This would serve as a proper record, or rather as one of the best records, in a graphic way, to show the result of the fracture; it also would serve as a protection in case of suit or any subsequent questions as regards the outcome of the treatment.

Only 83 cases were reported as having good apposition without angulation in which the x-ray had been used, and which had been certified by this method.

The list of cases is a large one, large enough to establish many points and to serve as a reference, yet it is so fragmentary in regard to the reports of the majority of the cases that its value is very much lessened.

The chairman, while appreciating the value of this collection of cases and believing that the work, which has not been inconsiderable, will result in good, must warn students who refer to the list to carefully study the points and not conclude, because 788 cases have been collected, that they may use the whole number in deducing conclusions from this list.

The chairman feels that a further study of this very much larger number of cases establishes and confirms the conclusions of last year, and he would reiterate these conclusions and append them to this, the final report.

After all, perhaps the chief object—and certainly one of prime importance in the study of these cases—is to deduce a conclusion in regard to the value of the old conservative plan as compared with the new or open method of treating these fractures.

The chairman has collected altogether eighty-one cases of well-authenticated and well-noted instances of the open operation, without a single death, and they are reported as having made satisfactory recoveries.

The reporters, however, failed to note whether there was any suppuration in the cases, whether in a majority of them disability was not much longer,<sup>1</sup> and whether at any time the patients had been in jeopardy of their lives. I think all these points would have to be taken into consideration in estimating the value of the open as compared with the old conservative method.

Eighty-one cases against seven hundred would certainly not offer a proper proportion as regards

<sup>1</sup> Dr. Lowman's observation at Cambria Steel Company's works of men who could not retain their former jobs after recovering from these fractures by the old methods of treatment is a very interesting and important one.

a clear accurate comparison of the two methods, and the facts indubitably are that the collected cases show that nearly seven hundred of them were restored in a remarkably short average period to usefulness, and that according to the reports, only 3.69 per cent. deaths resulted. While in the hands of careful, skilful, well-prepared surgeons there is no doubt that the open method may be used with comparative safety, every thinking and experienced surgeon must admit that a wound, such as must be made in applying any proper sort of fixation apparatus directly to the shaft of the femur, adds a very strong element of danger to these cases. This, one must always consider in making up his mind in regard to these two methods.

In addition to this, one must remember that a very large majority—indeed nearly all the cases treated by the conservative method—make recoveries which may be called efficient, without being exposed to the danger, or extra danger of infection, and the possible effect of weakening the bones by the screws or pins which must be inserted in order to hold the plate in place.

The open method is certainly valuable in cases in which it has been clearly demonstrated that proper apposition or restitution of the fragments cannot, in the given case, be properly accomplished, and in such instances it should be used in the early stages, say in the first ten days or two weeks. In the hands of careful surgeons with best hospital surroundings, the operation may be done without mortality, or with very low mortality.

Statistics, such as have been gathered, and the history of the completed cases do not show that the results as regards usefulness of the limb and shortening of the period of disability are better in any marked degree than those of the old conservative method. The conclusion must therefore be that these open methods cannot be recommended as a routine practice, and that they should never be used except by men who are thoroughly qualified, and with proper surroundings—surroundings where the proper instruments may be had, where proper operation-room facilities and training will insure thorough aseptic technic, for upon the absence of supuration depends the success of the operation.

It seems to the commission that there is no reason from the study of this much larger number of cases to change the form or wording of the conclusions adopted by the Commission of the Medical

Society of the State of Pennsylvania in its report of last year, and it offers these as the present deductions.

These incomplete reports, and the comparatively large number of cases which have been tabulated serve to indicate indubitably that this most important fracture and serious injury, in hospitals at least, does not receive the attention and care of the chief surgeons as a rule. Treatment is usually delegated to the interne staff, whose experience and anatomical and mechanical knowledge are wholly inadequate to meet the indications in a great many of the cases, and whose lack of order and thoroughness makes the records such unreliable data that it is very difficult for any one searching for the truth in the various phases of treatment to find what he wishes.

The first recommendation of the commission, therefore, would be, and the first deduction from its work is, that teachers of surgery in medical schools should give far more attention than they have done in the last decade or more to their own investigation of fractures, and to the teaching of this most important branch of surgery to the students who belong to their classes.

Second, while recognizing the fact that x-ray photographs may be most misleading, the commission believes, nevertheless, that when taken by competent anatomists who understand the importance of proper relative position of tube and limb, and the importance of taking more than one view of the fracture, these radiograms will furnish an indication for the proper reduction and for the mechanical appliances for the preservation of proper apposition, and that they will serve as a graphic record of the fracture itself.

These radiograms to be most valuable should be taken before reduction of the fracture, when it has been reduced and a fixed dressing applied, and finally after union has occurred and the patient is able to be up and about.

In regard to the method of treatment, the commission from the study of the cases finds that some form of traction is most commonly employed, and that the results after such treatment in most instances enable the patient to resume his occupation and function without serious detriment. Properly taken x-ray pictures, however, show that absolute apposition and restoration of the proper axis of the bone are very seldom accomplished.

Deaths from simple fractures of the femur are noted in 3.69 per cent. of the cases. The reports show they occur almost wholly in cases of old age from shock and exhaustion or from pneumonia; in drinkers from delirium tremens; or from some operative interference. It is evident that the open method itself introduces into the treatment of these cases such a very marked element of danger that the commission cannot recommend the method for general use nor recognize it as a routine practice.

In selected cases where it is impracticable to restore the fragments to their proper position, and where mechanical means have failed within a reasonable time to produce proper restitution of the fragments, the open method may be employed, but then only by an experienced surgeon, one who habitually uses the most thorough aseptic methods.

The commission is not prepared to recommend any one method of mechanical treatment. As in everything else, the method must be adapted to the case itself, and not the case to the method.

Some form of traction, such as Buck's extension, seems to be the preferable mode of treatment. If Badenheuer's suggestion of transverse traction over the ends of the fragments in order to overcome lateral displacements be added, it will greatly improve the results in many cases. Hamilton's apposition splints, placed about the fracture at proper places, will serve for this purpose in the majority of cases.

Plaster-of-Paris is also a valuable means of treating these fractures, but it should be applied under anesthesia. Complete relaxation, unconsciousness of pain, and laxity of muscles are necessary in employing the plaster dressing properly in these cases.

The usual methods of measurement are very inaccurate and give very misleading records in regard to shortening. This is all the more the case because of the well-established anatomical fact that femurs vary in length, and rarely are two lower extremities exactly the same. Records show good functional results after apparent shortening of extremities up to an inch and a half. The results may be considered good if the measurements show no more than an inch of shortening, provided there is no inversion or eversion of the foot from angulation of the fragments.

The ordinarily employed method of measuring from the anterior superior spine of the ilium to the tip of the internal malleolus should be checked, as

a rule, by some other measurement, as for instance, measuring from the tip of the ensiform cartilage to the internal malleolus or patella, or from the middle of the umbilicus to the internal malleolus. In making all measurements it is important to ascertain and assure, if possible, that the pelvis is not tilted and that the anterior spines are in the same horizontal plane.

### **PERSONAL OBSERVATIONS ON THE TREATMENT OF GASTROPTOSIS.**

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Medicine.*

The term gastroptosis is used by some writers to indicate those cases of abdominal ptosis in which the most prominent symptoms are due to the displaced stomach, while others make it synonymous with splanchnoptosis and enteroptosis.

It is in the former sense that it is used in this paper, although the treatment in general is applicable to all cases of splanchnoptosis.

In the time allotted to this paper, it is not possible to consider the etiology of this troublesome condition or to deal exhaustively with the treatment. It is therefore my purpose to refer briefly to personal experiences, hoping that the discussion will bring out points which will be helpful to all of us.

That the methods are not entirely satisfactory is shown by the frequent return of symptoms even after thorough and careful treatment. This is in part due to the nature of the disease, for there is a constant tendency to recurrence.

The general indications for treatment are to improve the nutrition and build up the nervous system, overcome auto-intoxication, and restore to the organs their normal functions; and this is best brought about by replacing displaced viscera and maintaining them in their normal position by mechanical support until increased weight and nerve and muscle tone take place.

For convenience, these cases are classified as those suited for ambulatory treatment, those requiring rest in bed, and those requiring surgical treatment.

In the first class, we are obliged to place most

dispensary patients and many of our private patients who must follow their vocations without interruption, or who have not advanced to a stage of deterioration justifying the more rigid treatment.

When such a patient seeks advice, the various available therapeutic resources are considered, and from them are chosen those that seem desirable.

First comes diet, then mechanical support, rest, massage, exercise, hydrotherapy, electricity and drug treatment.

The diet must be varied somewhat, depending upon the abnormalities of gastric secretion and the degree of motor insufficiency, but for the majority of cases the following diet, which is a slight modification of Lockwood's table, is quite satisfactory.

Breakfast, 8 a. m. Cocoa, cereal with cream and sugar, chopped beef with toast, or soft-boiled eggs, roll, butter and a little marmalade.

11.30, crackers with some preparation of fermented milk (lactic acid).

1 p. m., lunch. Fish or chicken or bird, bread and butter, one starchy and one green vegetable, farinaceous dessert such as cornstarch, farina or rice pudding, glass of milk.

4.30, a sandwich, or the remains of the farinaceous pudding, or junket or malted milk.

7 p. m., a meal like that at 1 o'clock.

9.30, a meal like that at 4.30.

Throughout the day the patient takes one-half pint of rich cream. This may be mixed with the food in any way that is considered desirable. No fruit is allowed and no red meat, except that prescribed for breakfast.

As soon as the patient is able to take this without discomfort, the caloric value of the diet is increased by using more cream and butter. After six or eight weeks, it is usually found necessary to modify our method.

Some form of abdominal supporter is recommended. If we are dealing with a flat or retracted abdomen, the adhesive plaster belt (either that of Achilles Rose or one of its modifications) is applied.

If the abdomen is pendulous or prominent, an ordinary elastic belt will suffice. In either case care is taken to apply it in such a way that the line of maximum pressure is just above Poupart's ligament and the iliac crests. When properly adjusted, it is interesting to note the improvement in appetite and the digestion and the slowing of pulse rate.

Before breakfast or before the forenoon lunch, a spinal and abdominal spray of hot and then cold water is given, followed by a brisk rubbing, except in those cases wearing the adhesive plaster belt.

Exercise is not allowed in the beginning, but after a few weeks is found helpful. Special exercises are ordered to develop and strengthen the abdominal muscles. It is not necessary to describe these in detail, but those who are interested will find the little "Manual of Exercises" written by Muller very useful.

Intragastric electricity and the high frequency current do good in many cases, but whether through psychic effect or because of general tonic properties, I have not been able to determine.

The drug treatment is symptomatic and simple. The patients are examined frequently, and as soon as they show symptoms of indigestion, evidenced by bad breath, eructations, gaseous distension, indicanuria or abdominal discomfort, it is controlled by the use of calomel, castor oil, duodenal irrigations (normal saline), colon irrigations (ichthyol solution a drachm to the quart), lavage (acid salicylic gr. 20, acid boric 1 dram, water 1 quart), lactic acid cultures, intestinal antiseptics, or perhaps one of the vegetable ferments.

A tonic is usually prescribed unless there is reason to believe that it will interfere with digestion.

Cases in which the vitality is not too much impaired usually do very well under this treatment, gaining in weight and vigor, with a corresponding improvement in subjective symptoms. Some patients are not able to follow this regime even in a modified form, as they quickly develop indigestion, which leaves them worse than when they started.

One learns by experience to determine with a fair degree of accuracy the cases that are apt to go wrong, and for these it is customary to combine with forced feeding, a rigid rest cure under the daily supervision of the physician and, when possible, aided by a nurse who has been especially trained for this work.

These patients do better if taken away from their friends and placed in an institution where the environment is cheerful and the food is specially prepared for the individual case. Under these conditions, the caloric method of feeding is used. A liberal diet is prescribed unless limited by abnormalities of gastric secretion, but we rule out soups and broths, fruits and berries, most of the green vege-

GENERAL DIET TABLE INDICATING FOODS PRESCRIBED AND THEIR COMBINATION IN CALORIC METHOD OF FEEDING. Sample Diet.

SOUPS	MEATS	CEREALS—(Con'd.)	SPECIAL	FRUITS	ALCOHOLIC	BREAKFAST	Daily amount
<b>* BROTHS</b> Beef Veal Mutton Chicken Rouillon Consommé Ox-tail	<b>BOILED</b> Stewed Roasted Broiled Hashed Beef Mutton Mutton Chops Lamb <b>Lamb Chops</b> Veal Sweetbreads Pea Beans Liver Kidneys Pork Bacon Ham Dried Beef Corned Beef Sausages Pigs Feet Tongue Tripe	Macaroni Spaghetti Flaked Rice Cream of Wheat <b>Force</b> Grape Nuts <b>VEGETABLES</b> <b>STARCHY</b> Rice Corn Lima Beans Potatoes <b>Baked</b> <b>Boiled</b> <b>Mashed</b> <b>Chopped</b> Sweet Potatoes Beets Parsnips Turnips Carrots Kohlrabi Artichokes Salsify Radishes Beans	Beef Juice Johnsons Fluid Beef Valentine Meat Bovine Clam Juice Scraped Beef Beef Tea Albumen Water Milk Toast Toast Water Barley Water Oatmeal Water Gruel Irish Moss Flaxseed Tea Slippery Elm Tea Milk Punch Egg Nog Koumiss Wine Whey Mulled Wine Pandia Caudle Broth with Egg Plasmion Predigested Food	<b>FRESH</b> Dried Stewed Baked Oranges Lemons Limes Shadocks Grapes Bananas Pineapples Melons Apples Peaches Pears Plums Apricots Cherries Raisins Dates Figs	Beer Ale Porter Stout Cider Sherry Port Madeira Tokay Rhine Wines <b>Label:</b> Champagnes <b>Label:</b> Clarets <b>Label:</b> Burgundies <b>Label:</b> Whiskies <b>Label:</b> Brandies <b>Label:</b> Gin <b>Label:</b> Liqueurs	1 cup tea Bread, 4 oz. Butter, 1 oz. Beef, 1-4 lb. Hominy, 4 oz.	300 c. 213 c. 227 c. 410 c. 1160 c.
<b>* PURRES &amp; CREAMS</b> Barley Rice Pea Bean Potato Tomato Asparagus Onion Celery	<b>* THICK SOUPS</b> Vegetable Noodle Sausages Vermicelli Calfs Head Mock Turtle Nulligatawey Clam Chowder Fish Soups	2715 c. 1635 c.	395 c.			<b>FORENOON LUNCH</b> Milk, 8 oz.	155 c.
<b>* FISH</b> Boiled Broiled Baked Sole Germar Carp Weakfish Bass Trout Chicken Halibut Flounder Sheepshead Pike Bluefish, lean part Shad, lean part	<b>WHITES</b> Yolks Soft Boiled Poached <b>** MILK</b> Unskimmed Skimmed Buttermilk Boiled Milk Pasteurized Top Milk <b>* CHEESES</b> <b>BREAD</b> Crust Fresh Baked Stale Toasted Pulled <b>ZWEIBACK</b> White Flour Graham Rye Crackers Gluten Almond Inulin Soya Aleuronat	720 c. 250 c. 1705 c.	190 c.		<b>CONDIMENTS</b> Pepper Mustard Spices Verbs Vinegar Olive Oil Lorscradish Sauces Caviare Cate de Foie Gras Salt	LUNCH Milk, 8 oz. Butter, 1 oz. Bread, 4 oz. Chicken, 4 oz. Rice, 4 oz. Spin th	155 c. 213 c. 300 c. 191 c. 406 c. 1365 c.
<b>* OYSTERS</b> RAW Broiled Stewed Baked in Shell					<b>FATS</b> Bone Marrow Cod Liver Oil Olive Oil Emulsion of Fats Cream, 20% Butter	AFTERNOON LUNCH Milk, 8 oz.	155 c.
<b>* CLAMS</b> Crabs Lobsters Shrimps Terrapin					<b>WATER</b> Hot Cold Spring Distilled Filtered Boiled	DINNER Bread, 4 oz. Butter, 1 oz. Beef 1-4 lb. Potato 3 oz. Rice, 4 oz. Custard	3600 c. 865 c. 3410 c.
<b>* POULTRY</b> Chicken White Meat Squab Turkey Guinea Fowl <b>* GAME</b> Venison Rabbit Wild Duck Birds					<b>BEVERAGES</b> Non-Alcoholic Coffee Tea Cocoa Chocolate Coffee Substitute <b>Name:</b> Lemonade Grape Juice Ginger Ale Soda Water Mineral Waters <b>Label:</b>	EVENING LUNCH Milk, 8 oz.	155 c.

DIRECTIONS: A double \* signifies that all articles down to the next \* are permitted. Individual articles in any list underscored are allowed; all not designated are forbidden. Unit amounts given are for a pound of the food indicated.



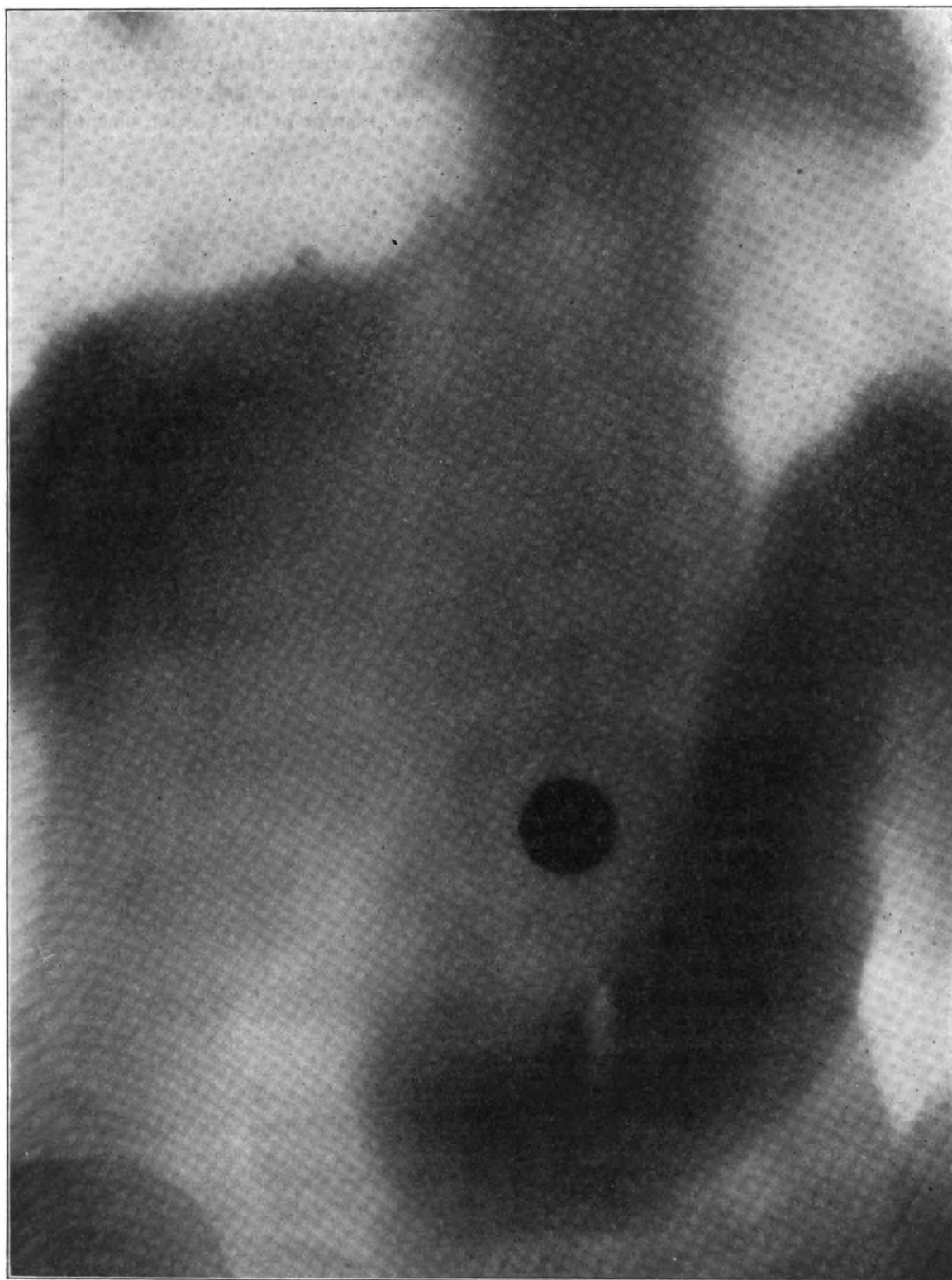


Fig. 1. Radiograph of the stomach before operation taken in the recumbent position. In the erect posture the lower border of the stomach disappears below the brim of the pelvis.

tables, the starchy vegetables which are particularly prone to ferment, fresh breads, the meats which are most difficult of digestion, rich desserts, and usually alcoholic stimulants.

For the first three or four days, they are kept on a very light diet and are given calomel, salines, castor oil or colon irrigations, after which they are started on about 1,800 calories daily, quickly increasing to 2,400 or 3,000 calories.

In the majority of cases 3,000 calories is then made the minimum amount, and from day to day the diet is increased, as the condition of the patient indicates. Some days 5,000 to 6,000 calories will be given, perhaps to drop back the following day because of abdominal distention or other symptoms of indigestion.

Without special instructions, in order to get the number of heat units prescribed, the patients take liberally such foods as bread, butter, rice, cereals, cream, bacon and olive oil, as otherwise they find it difficult to obtain the proper number of heat units.

The need of medication increases with the increased quantity of food, but, by careful watching, the diet can be forced for some time without trouble, so that it is not uncommon to have the patients gain a pound or more daily.

The various therapeutic resources mentioned above are used and, in addition, massage is recommended, particular attention being given to the abdomen.

Hot compresses or poultices applied over the abdomen during the active stage of digestion increase abdominal circulation and diminish discomfort.

Hypodermics of some soluble form of iron or glycerophosphates are given.

It is seldom necessary to continue this regime for more than four to six weeks.

Following a course of treatment, it is advisable to keep the patients under observation for a long time, as they are apt to relapse as a result of work, worry and dietetic errors.

Occasionally in stubborn or relapsing cases, we have to consider the advisability of surgical treatment. The operation of gastropexy has its legitimate field of usefulness and some remarkable results have been obtained by this method of treatment.

Special operations have been described by:

Duret (suture of the stomach to the abdominal wall).

Davis (suture of the lesser omentum to the parietal peritoneum).

Rovsing (suture of the stomach to the parietal peritoneum).

Hartman (suture of the pylorus to the abdominal wall after plication of the gastrohepatic omentum).

Coffey (suture of the greater omentum to the abdominal wall below the colon).

Webster (approximation of the recti-muscles).

Beyea and Bier.

The two last named surgeons shorten the gastrohepatic and gastrophrenic ligaments, the difference consisting only in a variation of the method of applying sutures. Their technic seems the most satisfactory, as it does not create an abnormal fixed point.

Beyea's original article, published in the *Philadelphia Medical Journal*, 1901, 1, p. 257, is worthy of study. He reports three cases of his own and four operated on by Bier. In summing up his paper Beyea says: "The completeness of the relief and to my mind the extraordinary restoration to health of these seven patients, who had suffered for years, the simplicity of the operation (which restores the stomach to normal position by shortening of its natural ligaments without removal of tissue or formation of abnormal adhesions), and the fact that it is practically free from danger (estimated at one-quarter of one per cent.) must strongly recommend this operation, at least, in every case of gastroptosis in which the suffering is great. The mechanical treatments at best procure only partial relief of symptoms, but do not restore the position of the stomach (the cause of the illness) and entail constant treatment, diet and wearing of cumbersome bandages, while the operation promises at once to completely and permanently restore the patients to health."

It does not seem wise to accept unreservedly his fascinating conclusions, for certainly the cases of moderate gastroptosis do very well on the treatment outlined above and, moreover, there are cases in which, owing to faulty development of the lower thoracic region, the liver occupies the upper abdomen almost completely, forcing the stomach downward.

In one of my cases it was impossible to improve the position of the stomach and the patient appears to have been made worse by operation.

The case which I take the liberty of presenting

shows in a typical way the benefit sometimes derived from the Beyer operation. Her history is as follows:

Annie C., married, aged fifty-six, Irish, housewife, presented herself for treatment in November, 1908.

excessive user of tea and a moderate consumer of alcohol. Two years ago, she was operated on for rectal prolapse, but with only temporary relief of constipation, for which it was performed.

Present Condition: Her illness began five years ago with diarrhea, which lasted from four

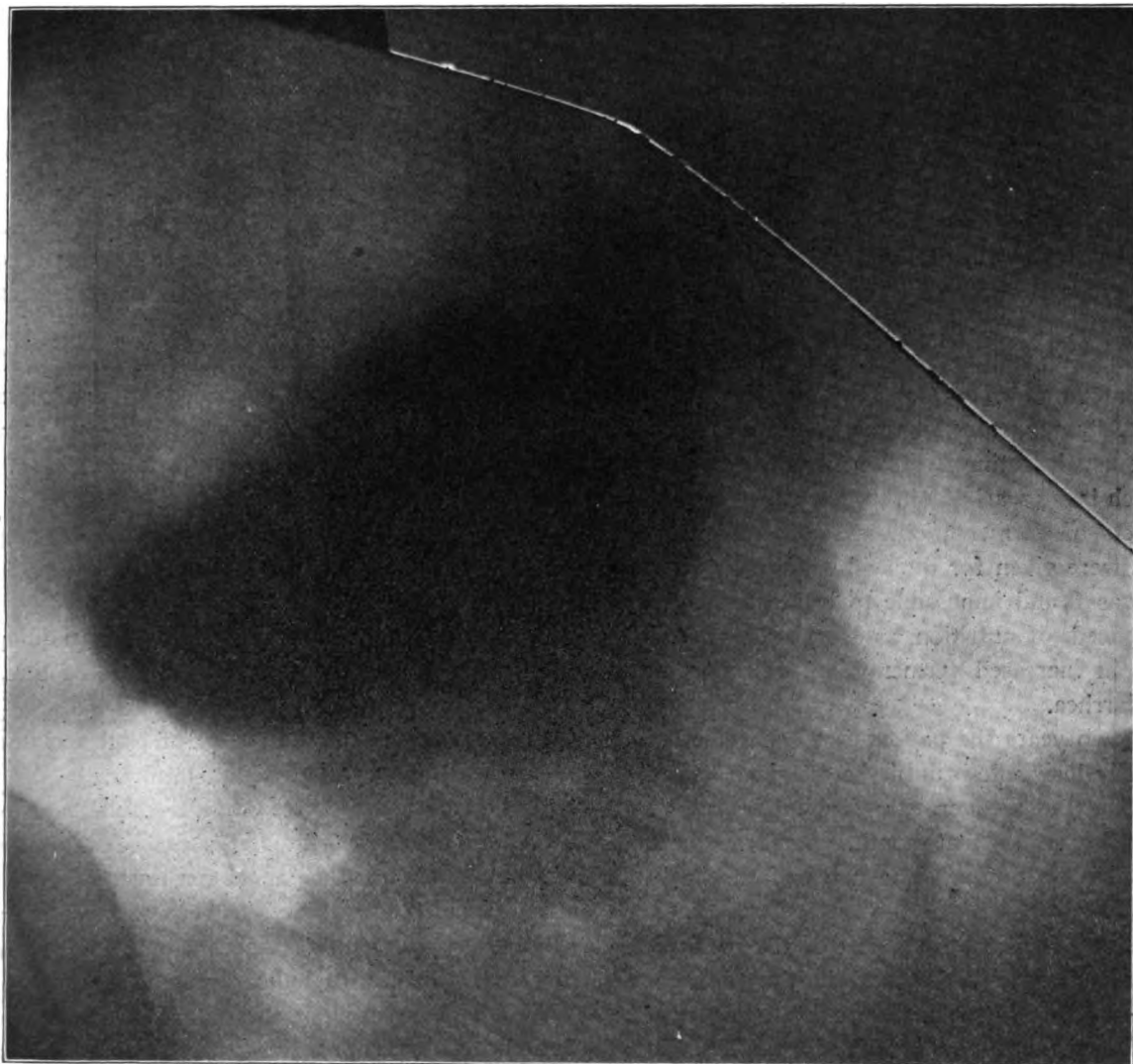


Fig. 2. Radiograph of the stomach one month after operation, taken in the erect position.

**Family History:** Mother died at thirty-seven of Bright's disease. Father died at thirty-eight of consumption.

**Previous History:** Patient has had five healthy children, one miscarriage, one stillbirth. Labors were normal and not unduly difficult. Menses regular until menopause at age of fifty. Fourteen years ago, she developed acute articular rheumatism. She was given very strong medicine, which affected digestion and was followed by diarrhea which lasted for several months. She has been an

to six weeks, and when that was checked, she commenced to belch gas and became very much constipated. She had no pain and no vomiting, but her appetite was poor and she gradually lost flesh. She felt bloated, heavy and drowsy after meals, had a great deal of gas in the stomach and bowels, and frequently passed large quantities of mucus. She was nervous, could not sleep, had vertigo and severe palpitation (often so bad that she thought she was dying), became melancholic and had thoughts of suicide.

Five years ago she weighed 150 pounds. At the time of my first examination her weight was 103 pounds.

Physical Examination: General condition poor. Tongue moist, coated; teeth, Rigg's disease. Heart, some hypertrophy, over-acting. Lungs, negative. Liver, very slightly prolapsed. Spleen, normal. Right kidney, palpable and movable.

The stomach extended from the eighth rib to two fingers' breadth above the pubes, the position being a combination of true gastroptosis and lateral displacement.

Test Meal: Mucus, considerable. Expressed contents, 50 c.c. Residual contents, 150 c.c. Free hydrochloric acid, 42. Total acidity, 74. Organic acids, trace of butyric. Starch digestion, diminished. Duration test, positive. Water test, positive. Fasting test showed slight solid food residue.

Examination of urine: Sp. gr., 1,030, amber, acid. Albumin, trace. Sugar, none. Casts, absent.

The usual routine treatment was undertaken, the stomach being washed out to get rid of mucus and products of fermentation, and alkalies and belladonna were given for the acid condition.

It was found impossible to increase the diet up to the needs of nutrition, as every such attempt resulted in increased fermentation, belching of gas and diarrhea.

For two years the patient was seen at intervals, gradually losing flesh until she weighed 86 pounds.

She entered Gouverneur Hospital in July, 1910, and on the 16th of that month, I performed a modified Beyea operation. The notes of the operation are as follows:

Five-inch incision to the left of the median line. Stomach exposed and found in the position described above, the transverse colon being crowded down below it into the left iliac fossa. The gastro-hepatic omentum was atrophied so that it had the appearance of a thin veil.

Patient was placed in Trendelenburg position, the liver retracted upwards, and several rows of No. 2 chromic catgut sutures were inserted, catching the serous coat of the stomach and puckering the omentum above, until the stomach was drawn well up under the liver, after which the abdomen was closed without drainage.

The x-ray pictures show the position of the stomach before and after operation.

Convalescence was uneventful, and on July 27th

the patient reported that she was passing well-formed stools which she had not done before for years. She was discharged from hospital August 3rd, free from all symptoms. Her appetite was good, and she was gaining in weight.

On February 20, 1912, examination shows that she weighs 142 pounds (a gain of 56 pounds).

Analysis of stomach contents: Mucus, moderate amount. Total acidity, 68. Free HCl, 26.

Urine: Yellow, alkaline, sp. gr., 1,012. Albumin, trace. Sugar, none. Indican, trace. Casts, none.

There has been no return of symptoms and she is engaged in active work (a cleaning woman).

Not the least interesting of the results is the complete relief of the mucous colitis and restoration of normal heart action.

[P.S. Dr. A. Robin, *International Medical Magazine*, December, 1900, described an approximate quantitative test for indican which is useful, simple and sufficiently accurate. It is as follows:

Prepare the following solution:

1. Obermeyer's reagent—Ferric chloride, 2 gm., hydrochloric acid C. P., 1000 c.c.
2. Solution of lead acetate 25 per cent.
3. Solution of potassium chlorate, containing 1 per cent. available chlorine, or 34.6 gm. of the salt per liter.

To 10 c.c. of urine add 1 c.c. of lead acetate solution and filter through a double filter.

Put 5 c.c. of the filtrate into a test tube, add 5 c.c. of Obermeyer's reagent and 2 c.c. of chloroform, and invert the test tube about ten times or until the color of chloroform ceases to become more intense. The latter will assume a violet or blue color according to the amount of indican present.

Add from a dropper the potassium chlorate solution drop by drop, shaking the mixture after each addition, until the blue color of the chloroform disappears.

The potassium chlorate liberates chlorine in the presence of a strong mineral acid and oxidizes the indigo formed by the addition of Obermeyer's reagent.

If the amount of indican is normal, one or two drops will cause decoloration.

In making your memorandum, mark down: decolorized by x drops KClO<sub>3</sub> solution.

This test has been found so helpful that it has been given in detail.]

PUBLISHED

BY THE

**International Journal of Surgery Co.****FRANK C. LEWIS, M.D., Managing Editor.**

100 William St.—Woodbridge Building.

NEW YORK, N. Y., U. S. A.

To whom all communications intended for the Editor, original contributions, exchanges, books for review, as well as communications relating to the business of the Journal, should be addressed.

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**Editorial Department****NEW YORK, DECEMBER, 1912****TRANSPLANTATION OF TISSUES AND BLOODVESSELS.**

The idea of replacing diseased organs by sound ones, of restoring an amputated limb or even grafting a new one on a patient who has undergone an amputation, is doubtless very old. The performance of such operations, however, was hitherto completely prevented by the lack of a method for uniting vessels, thus re-establishing a normal circulation through the transplanted structures. The feasibility of these procedures depended on the development of the technic. Experiments began in 1901 with the anastomosis of bloodvessels by Payr of Gratz and Murphy of Chicago. Payr used a magnesium tube, while Murphy united the arteries by invagination and suture. The modern method of circular suture was developed by Carrel of the Rockefeller Institute, and it is to him that we are indebted for the great advance made in this direction during the past seven years. From these experiments it appears that vessels sutured under certain conditions heal very easily, and that no thrombosis occurs as long as the operation is aseptically and the union of the vascular ends is accurate. The results also are durable.

The transplantation of a segment of an artery

was first performed in 1896 by Jabowsky, but not successfully until August, 1905, when Carrel accomplished it. The operation has proved successful when the vessels are of sufficient caliber and a perfect anastomosis is secured. If they are of a different size and exact approximation of the intima is difficult, fibrin may be deposited on the line of suture. Therefore, in cases of great difference of caliber, it would be advisable to reduce the diameter of the end of the larger vessel by a V-shaped resection.

Unfortunately there are serious obstacles to this operation from a practical standpoint, for it is difficult to obtain fresh pieces of human arteries. If the veins could be utilized as substitutes for arteries, the problem of treating large wounds or of resection of arteries would be solved, for it is always possible to get venous material from the patient himself. In 1898 Gluck attempted the transplantation of a segment of the jugular vein into the carotid artery of a dog, but thrombosis occurred. In 1903 Lexer performed six experiments of the same character with the same result in every instance. In 1905 Carrel succeeded in transplanting segments of the jugular vein into the carotid artery of a dog and found that the vein quickly underwent structural changes, consisting chiefly in thickening of its wall.

Another advance in this field of experimentation was the transplantation of preserved arteries. In March, 1907, Carrel was able to transplant a segment of the carotid artery of a dog that had been kept in a tube for ten days; and in May, 1908, the neck of the dog was opened, the transplanted portion of the artery exposed, and the anastomosis showed only by a very narrow dark line on the adventitia where the suturing had been done.

Turning now to the fascinating subject of transplantation of organs, we are equally indebted to Carrel for his contributions. The kidney was successfully transplanted by him from one dog to another. Two large dogs underwent a unilateral nephrectomy, and the extirpated kidney was replaced by one from another dog, and within thirty-six hours the transplanted organ began to secrete urine almost normal in character. Two years after the operation the animals were still alive and the kidneys functioning normally. A thyroid gland extirpated and replanted with reversal of the circulation, when directly examined through a cutaneous incision on the twenty-fifth day after the operation,

appeared in good condition. On the forty-fifth day the investigator was able by touch to detect the systolic expansion of the gland, and ninety-four days after the operation conditions were the same.

Some very interesting experiments have been made with reference to the transplantation of limbs. The thigh of a dog was completely amputated and afterwards replanted by suturing the vessels, nerves, muscles, aponeurosis and skin. The pulsations of the popliteal and posterior tibial arteries immediately became normal and the femoral vein filled with dark blood. The whole limb, except the foot, was encased in a plaster-of-Paris bandage. The circulation of the replanted foot was exaggerated and this occurred about eight hours after the operation. Sixty hours after its performance one dog was killed and the anastomotic parts were found to have united by primary union. Since that time Carrel has been able to replant an entire limb on a dog which was allowed to live for one year and then killed.

From a practical viewpoint the transplantation of bloodvessels and organs as well as limbs, though successful in animals, cannot at present be applied directly to the human being, for there are marked anatomic and physiologic differences between the tissues and organs of man and of dog or cat. The methods will have to be modified according to these differences. In vascular surgery every detail is of great importance, for a small fault of technic can produce fatal consequences. But it is certain that these accidents cannot happen when an exact method is used. In the future, perhaps, it will be possible to utilize surgically some of the wonderful experimental results that have been obtained by Carrel, Guthrie, Watt, and others.

EDWARD ADAMS.

### **MEDICAL SOCIETY OF THE STATE OF NEW YORK—COMMITTEE ON PRIZE ESSAYS.**

The Committee in charge of the Merrit H. Cash, \$100.00, and Lucian Howe, \$100.00, Prize Fund of the Medical Society of the State of New York, offer the suggestive, but not arbitrary, subjects upon which the competitors may write their essays:

1. Diagnosis and treatment of syphilis of the central nervous system.
2. The present status of serum therapy.
3. Latest research relative to cancer.
4. The order and sequence of vascular and cardiac disease.

5. The function of the State in limiting the increase of imbeciles and degenerates.
6. Surgery in functional and organic disorders of the stomach.

The essays must be in the hands of the Chairman of the Committee, Dr. Albert VanderVeer, 28 Eagle St., Albany, N. Y., not later than April 1, 1913.

DR. JOHN F. W. WHITBECK,  
781 Park Ave., Rochester N. Y.,  
DR. EDWARD D. FISHER,  
46 East 52nd St., New York,  
DR. ALBERT VANDERVEER,  
28 Eagle St., Albany, N. Y.,  
*Committee.*

### **HINTS ON FRACTURES.**

By JOSEPH E. FULD, M.D., New York.

The unskilful application of a circular bandage to the arm may be followed within a short period by ischemic paralysis. The patient or the person in charge should be instructed to keep the fingers moving after the application of the plaster dressing. If the patient is unable to do so, or should a swelling or blueness of fingers appear with increasing pain, the bandage must be cut down immediately and re-applied properly.

After ischemic paralysis has developed the best treatment is that suggested by Mr. Robert Jones of Liverpool. The wrist is first flexed, this relaxing the flexor tendons and allowing the fingers to be drawn away from the palm; a palmar splint is then applied, including the fingers. Gradually the fingers are drawn straight while the wrist is still flexed, and the metal splint is straightened more and more at each dressing. This is continued until the fingers are in full extension while the wrist is flexed. The splint is then carried up the forearm and the wrist extended gradually, while the fingers are kept in extension. The fingers are thus kept from flexing and the hand brought into extension and finally hyperextension, in which position it must be kept for several months to complete the cure.

In the orthopedic department of the Hospital for Ruptured and Crippled we see daily a very large number of mal-united fractures, previously treated elsewhere, amongst which Pott's fracture ranks foremost. The most frequent error made by the surgeon in setting this fracture is in not correcting the posterior and lateral displacements, and unless this is rectified the patient will suffer from traumatic flat-foot.

# Department of Railway Surgery

OFFICIAL ORGAN

THE ASSOCIATION OF SURGEONS OF THE SOUTHERN RAILWAY.  
ASSOCIATION OF SURGEONS OF THE PENNSYLVANIA LINES.  
ASSOCIATION OF SURGEONS OF THE SEABOARD AIR LINE RAILWAY.

## SUGGESTIONS ABOUT EYE INJURIES.\*

### What Should Be Done and What Should Not Be Done.

By JOSEPH A. WHITE, M.D., Richmond, Va.

Injuries of the eye are common among railway employees, both linemen and shopmen, but do not differ from similar accidents among persons engaged in equally hazardous employments. Yet because of their special exposure to eye injuries, often apparently of the most trivial nature, but which frequently, from lack of proper attention or no attention at all, cause serious trouble, and even occasionally loss of sight, the subject is one of some importance to railway surgeons.

Such a simple matter as a cinder in the eye has resulted in the destruction of the globe, and I have seen it more than once. Whilst in the majority of cases the accompanying pain and irritation are the only unpleasant features, occasionally it happens that either because of septic germs accompanying the foreign particle, or because of the traumatism itself in a depraved condition of the system, or because of improper methods of removing the foreign body, we have to face a case of rodent ulcer of the cornea.

The employees of the shops, like all other workmen in foundries, are frequently the subjects of serious injuries, wounds, and lacerations of the eye that come directly under your observation as railway surgeons; and apart from the immediate treatment of the injury, the graver question of possible sympathetic trouble in the other eye and removal of the injured organ has to be considered.

Trainmen and linemen are also subject to similar injuries, especially in accidents; for example, the breaking of the oil and water gauge may cause serious detriment to the sight of one eye with possible danger to the other.

These injuries may be divided into those of the external structures of the eye and those of the deeper tissues.

Among the first are foreign bodies in the conjunctiva or cornea, abrasions of the cornea, burns from lime or hot metal, and contusions due to a violent blow from whatever cause.

Among the second are penetrating wounds of the cornea and sclera, dislocation of the lens, or rupture of its capsule, and foreign bodies in the interior of the eye.

Time does not permit, nor do I propose to go into details regarding all the numerous forms of eye injuries, but it is apropos to say a few words about the necessity of a careful diagnosis of each case before giving the prognosis or instituting treatment. The modern methods of diagnosis employed by ophthalmic surgeons are so accurate that it is almost impossible for a competent and properly equipped man to make an error.

The use of a cocain or a holocain solution, to allay the discomfort and irritation about an injured eye, is often required to allow of a proper examination.

A good light, Berger's loupe and direct ophthalmoscopy will easily detect even the most minute foreign bodies in the cornea. If in doubt, a 2 per cent. solution of fluorescein with 2 per cent. of bicarbonate of soda will show the location of the object by staining the abraded spot in the cornea a bright green, and do no harm to the tissues.

If the pupil is not exactly circular, it usually indicates a dislocation of the lens, especially if it does not dilate satisfactorily; i. e., provided there is no iritis.

Hemorrhage into the anterior chamber is readily seen by the naked eye, and hemorrhage into the vitreous can be detected by the ophthalmoscope, or by transillumination.

A foreign body in the eye can be located sometimes with the ophthalmoscope; sometimes by the magnet, if it is a magnetic body; and whatever it may be, by the diaphanoscope, or by radiography with the Sweet localizer. The latter locates the foreign body with great exactness. Every x-ray expert is nowadays equipped to do this work.

Knowing these facts, as all railway surgeons should, there is no excuse for not arriving at a correct diagnosis of an eye injury, as ophthalmic surgeons are in easy access on all the lines of the Southern Railway, and all such cases except the simplest injuries should be put under the care of the Company's oculist.

\* Read by title at seventeenth annual meeting of Association of Surgeons of Southern Railway, Washington, D. C., June 11-12, 1912.



The prognosis of such injuries depends on the character of the injury. Penetrating or perforating wounds, foreign bodies inside the eye, and infection require a graver prognosis than other injuries, because of the resulting damage to sight and the possibility of the removal of the eye. Burns, especially from lime (which occur principally among painters in the shops), are nearly always of marked gravity.

#### TREATMENT.

The treatment of eye injuries depends on the nature of the trouble. It should be impressed upon the employees that *first aid* to the injured eyes is to let them severely alone and go at once to one of the Company's surgeons, except when a quantity of foreign matter such as dirt, lime, or other substance enters the eye, when cleansing with clean water and covering the eye with a clean cloth should be the only treatment until the surgeon is seen.

This simple suggestion is violated every day in the shops, where some so-called adept in such injuries dresses the wounded eye, or attempts the removal of foreign bodies, frequently doing a lot of damage and increasing the danger of the original trauma.

The removal of impacted cinders from the cornea requires the same aseptic care that should be taken in graver injuries, and I have often seen serious ulceration follow the neglect of such precaution.

Ordinary surgical principles apply here as elsewhere, the basis being thorough cleanliness. The cap and gown and other frills of the operating-room may be dispensed with, but clean hands, sterilized instruments, irrigation of the conjunctival sac with normal salt or boracic acid solution, are essential in all forms of eye injuries, from the slightest to the most dangerous.

Never attempt to remove a foreign body from the cornea with anything except a clean instrument. If you must use a pocket knife, in an emergency, see that it is clean beforehand, for no tissue in the body is easier to infect than the cornea.

Simple scrapes, or abrasions of the cornea, with or without the presence of any foreign body, should be carefully looked after because of the danger of infection. The conjunctival sac should be thoroughly cleansed by irrigation, as already suggested. Argyrol is to be dropped into the eye and the sac filled with some sterilized medium such as bichloride vaseline, 1 to 3,000, and a dressing consisting of

a sterilized pad of gauze applied. (This preparation of vaseline and bichloride of mercury, 1 to 3,000, is a suggestion I made some years ago to this and other medical societies, and is used in many eye hospitals of the country. The formula is found in most of the latest text-books on ophthalmology—one grain of bichloride of mercury, 5 grains of chloride of sodium, and 6 ounces of vaseline. The bichloride and salt are dissolved in a few drops of water or alcohol and thoroughly incorporated with the vaseline.)

In twenty-four hours the epithelium of the cornea is regenerated and the danger of infection is past.

If the cornea is already infected and an ulcer has developed, it should be sterilized by an application of carbolic acid, and the excess neutralized with alcohol; or the infected area can be touched lightly with the actual cautery, using a platinum probe heated to a red heat, and the same treatment applied as above.

In burns of the conjunctiva and cornea from lime or hot metal, no occlusive dressing should be applied. The eye should be filled with sterile vaseline and left open, the eyeball and lids being moved frequently to prevent adhesions which would be sure to follow if the eye was bandaged.

In wounds of the cornea, the eye should be thoroughly cleansed, any projecting iris cut off, atropia and argyrol dropped into the eye, and the same sterile dressing applied.

If the sclera is wounded, the conjunctiva should be drawn over the wound and stitched together to protect the contents of the eyeball. We may also in many cases cover wounds of the cornea with a conjunctival flap by the Kuhnt method.

If a foreign body has entered the eye, it should never be probed for, as I have known surgeons to do, since the probing does more harm than the foreign body.

If there is so much blood or effusion in the vitreous as to prevent locating the foreign body with the ophthalmoscope, the x-ray localizer should be resorted to in order to determine its exact site.

If it is a magnetic body, it can in most instances be removed with the magnet, either through the entrance wound or through an opening made in the sclera convenient to the foreign body. If not a magnetic body, the eye has to be removed in most instances.

In no case, however, should an eye ever be taken

out without consultation with an ophthalmologist, for I have known of many a one unnecessarily enucleated and the patient subjected to this dreadful mutilation, when proper treatment would have saved the organ, even if the sight could not be restored. A sightless eye, unless much deformed, is far preferable to an artificial one.

It is very rare that there is any immediate demand for the removal of the eye. If "expectant" treatment has any place in surgery, it is in injuries of the eye. There is little or no risk of sympathetic trouble developing whilst the case is under daily observation by an expert, and many apparently desperate cases pull through with a fairly good eye that would have been taken out by being too precipitate.

Modern aseptic treatment and better acquaintance with the results of eye injuries have done away with the old bug-bear of sympathetic inflammation, although its probability in certain forms of injury, such as extensive wounds of the ciliary region and the entrance of the irremovable foreign bodies, should not be lost sight of, for in most of these cases enucleation becomes necessary.

However, as "prevention is better than cure," so prophylaxis against eye injuries in the shops should receive proper attention from the railway authorities, and can be brought about mainly through the efforts of the railway surgeon. The committee of the American Medical Association on the "Conservation of Vision" has given considerable attention to this phase of the question, and it was demonstrated in their exhibit. Guards for emery wheels and for lathes, protective shields in sand blasting and moulding, face and eye protectors for employees in foundries, rolling mills, and railway shops, are installed and utilized in many localities, and should be universally adopted. Strange to say, it is easier to get the employer to take such precautions as may be necessary than to get the employees to utilize them. But if the employers do their part and the employees fail to avail themselves of the preventive measures offered them, it shifts the responsibility and alters the question of damages, which is a thorn in the side of every railroad.

Malignant disease of the body of the uterus is undoubtedly very rare as compared with similar disease of the cervix, but I have found that its frequency and the possibility of its occurrence are much under-estimated by many practitioners.—*Dr. William Gardner.*

## Surgical Gleanings

**Rectal Disease as a Cause of Pruritus Ani.**—Dr. A. C. Crookall (*Med. Sentinel*, Oct., 1912) presents the following suggestions on the management of inveterate cases of pruritus ani: 1. Make sure the pruritus does not come from some skin disease such as eczema, erythema, etc. 2. Eliminate parasites, such as thread worms from the intestine and externally pediculi and trichophyton. If the above findings are negative, the cause of the trouble is very liable to be found in the rectum. 3. Examine the interior of the bowel, paying particular attention to the area at the ano-rectal junction. 4. Regardless of any other treatment, take care of the hypertrophied external skin with silver nitrate, citrine ointment or similar acting preparations. 5. In case no cause can be found and the disease is of many years' standing, we are justified in performing the operations of Ball or Krouse for the division of the anal nerves, as occasionally cases will be found in which the rectal disease has recovered, leaving the external skin condition as a distinct entity. The author has had one case of this kind in which the disease was of over 40 years' standing.

**Instrumental Impregnation.**—Dr. E. M. Mosher (*Wom. Med. Jour.*, Oct., 1912) believes that this procedure is a field peculiarly adapted to women in medicine, but should be undertaken only by those accustomed to strictly aseptic methods. Her technic is as follows: "I give careful instructions to my patient regarding the aseptic collection of the seminal fluid. Warm sterile water and a sterile well-covered receptacle (an ointment jar is as good as any other) are placed in readiness in my office dressing room. My patient meets her husband there and brings me the seminal fluid in a warm bath to maintain its temperature. I place her on the operating table, cleanse the vulva and external genitalia as for a curettage, being careful, however, to remove every vestige of soap and disinfectant applied and carefully preventing the passage of fluid into the vagina either in the cleansing process or by douche. The patient is placed in partial Trendelenburg position, the speculum put in place, and the vagina and cervical canal well wiped with cotton. A sound is then passed through the cervix to make sure the canal is open and to ascertain the direction of the uterine cavity at the moment. (Such preparatory treatment as has been found necessary has of course preceded the operation.) With a Braem's intra-uterine syringe the semen is carefully instilled into the uterine cavity. The vagina is filled with the fluid and a 'test tube,' containing very warm water and closed with a cork, is inserted into the vagina a couple of inches to promote by heat the activity of the spermatozoa. After a half hour the test tube is removed and the vaginal injection is repeated. I permit the patient to remain in position an hour or an hour and a half before she goes home. While waiting, I examine the semen, ascertain its degree of alkalinity, and under the microscope observe the degree of activity the sperm cells manifest. As acidity of vaginal mu-

cus and low alkalinity of spermatic fluid are common causes of sterility, I am in the habit of advising my patients who desire children to use a weak boracic acid douche before retiring. When I find that the vaginal secretion is very acid, I apply a tampon made of wool in which a little boric acid has been added dry. This I direct the woman to remove at bed time."

**Diagnosis and Treatment of Hydatidiform Mole.**—Dr. J. M. Mason (*Charl. Med. Jour.*, Oct., 1912) summarizes his experience and views in the following conclusions: 1. In cases diagnosed early, while the uterus is small and its walls still thick and firm, curettage may be undertaken without fear of any untoward result. 2. In cases seen later, with the uterus still not larger than it should be at three or four months, curettage or the production of abortion may still be undertaken if the patient is in a hospital or if the surgeon is prepared to go further if necessary to control a severe hemorrhage or treat a perforation of the uterus. 3. In cases seen late, where the uterus is much enlarged, its walls probably thinned, and its contractility probably impaired from overdistention, and where the patient's hemoglobin would indicate that severe hemorrhage could not be withstood, hysterectomy is safer and better, and should be the operation of choice.

**The Value of Gastroenterostomy in Ulcer of the Stomach.**—Professor A. Kocher (*Deut. Ztschr. f. Chir.*, Bd. 116) reports 50 cases of this operation. The retro-colic method with a short coil or none was the method of choice, the anastomosis being established at the deepest part of the greater curvature. The ante-colic method was employed in about one-third of the cases. The operation is almost free from risk and the end-results in acute ulcers are so favorable that there is no reason to replace it by more radical procedures. Occlusion of the pylorus in cases where the ulcer is situated in this region of the stomach is usually followed by a cure. To operate early is to prevent carcinomatous degeneration, but if there is any suspicion of cancer resection should be performed.

**Ideal Operation in Fistula in Ano.**—Dr. E. C. Beck (*Med. Era*, Oct., 1912) describes an operation which he has now performed in fifty cases. It was done in some cases under local cocain anesthesia, but generally under ethyl chloride. A probe is inserted into the canal and pushed through until it can be felt by the finger in the rectum. A grooved director is now slipped in over the probe. Running the tip of the scalpel along the groove the tissues are slit open with one sweep. Be sure to cut through the sphincter at right angles and it will reunite perfectly. Have the wound surfaces spread well apart and remove all the scar tissue in view carefully with a sharp blunt-pointed scissors. If in doubt rather cut away a little too much than not enough. Pay particular attention to the internal end of the wound. When all the offending tissue has been removed paint the whole surface over with tincture of iodine. The scanty bleeding can easily

be controlled by sponging. Great care must be exercised in bringing the several tissues together closely and accurately. For suturing material silk-worm gut is used. The first suture is placed at the inner, interior angle of the wound. The edges of the gut and sphincter are brought together with mouse-toothed forceps and a generous bite taken with the needle. A strong needle is imperative. Be sure you get enough tissue with your suture, as it will form a cushion when you exert pressure and will tend to keep the wound surfaces closely approximated. Sometimes it is necessary to make the suture for the sphincter an extra one, especially in those cases in which the fistula opens fairly high up in the gut. Leave the ends of the sutures long, clamp them and let them hang down out of your way. Sew up the rest of the wound in like manner, placing a stitch about every half inch, burying your needle deeply each time. Leave all the ends long, and when you have finished carry them all to one side and fasten them to the buttock with adhesive plaster. This will prevent irritation of the parts and add to the comfort of the patient. When the operation is completed a T binder is applied. The patient is kept on his back and in bed and his peristalsis held in check for at least four days by the administration of bismuth and opium. Only such nourishment is given as will leave the least amount of residue. When the patient begins to complain of cramps and colic his bowels are evacuated by means of an oil enema. He is usually allowed to go home at the end of the seventh day. At the end of ten days all sutures are removed excepting the innermost one which should remain for two weeks to insure a perfect result.

**Dislocation of the Head of the Radius Complicated by Fracture of the Ulna.**—Dr. A. P. C. Ashurst (*An. of Surg.*, Oct., 1912) presents the following practical suggestions: In recent cases secure reduction of the dislocated radial head, by arthrotomy and capsulorrhaphy if necessary. As Kirrmisson says, in such injuries the dislocation is everything, the fracture is nothing. When reduction is secured the fracture almost invariably will fall into good position. If it does not, it may be fixed by a suture or plate. In old cases with the ulna united attempt reduction of the dislocation by arthrotomy and retain the radius in place by capsulorrhaphy. If reduction after arthrotomy proves impossible, as it may if the ulna has united in bad position, it is better to excise the head of the radius than to interfere with the ulna, unless the deformity in the ulna is very extreme. In such cases osteotomy of the ulna may be done. In old cases with non-union of the ulna expose the ulnar fracture first, and after freeing the fragments, secure reduction of the dislocation by arthrotomy if necessary, including capsulorrhaphy; then treat the ulnar fracture as if no dislocation had existed. In cases with musculo-spiral paralysis excision of the radial head failed to secure a good result in one case (Zschock), and there is no evidence that reduction and capsulorrhaphy would not have been successful in two others (Albertin, Kammerer) in which excision was done.

**Myomata Complicating Pregnancy.**—In an inaugural dissertation, based upon his experiences in the Gynecological Clinic of Bonn, Dr. T. Levi (*Münch. med. Wochenschr.*, No. 37, 1912) states that in the treatment of myomata during pregnancy the following methods are to be considered. 1. Artificial interruption of pregnancy, which, however, has serious disadvantages as compared with operation. 2. Extirpation or enucleation of the myoma, which is to be recommended only where the uterus remains intact and the pregnancy is not likely to be interrupted. The results from this procedure, however, are not as satisfactory as one would think, and cases are on record in which the uterus had to be sacrificed on account of intractable hemorrhage. Moreover, the operation is often followed by abortion. Laparomyotomy is only advisable where there is twisting of the pedicle of the tumor. 3. Supravaginal amputation of the uterus or total extirpation. As to which of these methods is to be adopted must be decided in the individual case. It is always justifiable to attempt to cautiously replace an obstructing myoma in order to enable delivery to take place via naturalis, but forcible reposition must always be avoided, as vascular adhesions may be torn and give rise to death from hemorrhage. If these means do not succeed then laparotomy is the only recourse. Whether in such cases Cesarean section, supravaginal or total extirpation of the uterus should be the operation of choice must be left to the individual operator. The author gives a review of 21 cases with four deaths.

**Uremic Ulcers of the Vagina.**—Professor H. Eichhorst (*Med. Klinik*, No. 38, 1912; *Wiener med. Wochenschr.*, No. 42, 1912) refers to the well-known observation that necrosis and ulceration of the intestinal mucosa sometimes occur as the result of uremia. Chiari has reported the case of a woman suffering with hemorrhagic nephritis who was attacked with a necrotic inflammatory process of the mucous membrane of the cheeks, tongue, skin and intestine. Eichhorst has observed a unique case in which the vaginal mucous membrane was the site of uremic ulcers. The patient was brought unconscious to the clinic and an examination disclosed a dark red, very offensive vaginal discharge. The diagnosis of nephritis, uremia and uterine cancer was made, because the uterus was enlarged and sensitive. At the autopsy the cause of the sanguineous putrid discharge was found to be several ulcers of the vaginal mucosa. These were round or elliptical, sharply limited, though not of any depth, and their periphery had been converted into a necrotic sticky mass. Eichhorst thinks that this is the first observation of the kind of a uremic ulcer in this situation, although the possibility of its occurrence must be recognized from a diagnostic viewpoint.

**Treatment of Wounds and Ulcers by the Pfannenstiel Method.**—Dr. A. von Reuterskiöld (*Archiv. f. klin. Chir.*, Bd. 98, Hft. 3) has employed this method in the treatment of phlegmonous wounds, local tuberculous affections and lupus, and

infected ulcers, with marked success. It consists in the internal administration of potassium iodide and the local treatment of the wound or ulcer with hydrogen peroxide. This is done with the idea that the blood serum charged with the iodide exuding into the wound will, under the influence of the oxygen split off from the peroxide, liberate iodine in a nascent state which will exert a strong bactericidal effect upon the tissues. The peroxide is employed in 3 per cent. solution, which is acidified by the addition of 1 per cent. of acetic acid, and is poured upon the gauze dressing covering the parts for at least fifteen minutes. The author, however, has modified this method in such a way that the peroxide solution drips continuously upon the dressing, so that there is a constant liberation of fresh oxygen on the surface of the wound. The daily dose of potassium iodide, according to Pfannenstiel, should not be under 45 grains. In cases of phlegmonous wounds and ulcers, the necrotic portions were separated as early as two or three days, the base became clean, with an exuberant formation of granulations and often very rapid cicatrization. Remarkable results were also obtained in two cases of pleural empyema, an arrest of the suppuration and healing occurring within a short period.

**Treatment of Traumatic Coxa Vara.**—Professor Spengel (*Archiv. f. klin. Chir.*, Bd. 98, Hft. 3) believes that many cases of coxa vara are due to traumatism. If it can be shown that this condition is nothing more than a badly healed fracture or a separation of the epiphysis, good results may be obtained by forcibly correcting the marked outward rotation and adduction by bringing the leg as far as possible into a position of inward rotation and abduction. The force employed must be great enough to break up the badly healed fracture.

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STATEMENT OF THE OWNERSHIP, MANAGEMENT,  
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of THE INTERNATIONAL JOURNAL OF SURGERY, published monthly at 100 William Street, New York City, required by the Act of August 24, 1912.

NOTE.—This statement is to be made in duplicate, both copies to be delivered by the publisher to the postmaster, who will send one copy to the Third Assistant Postmaster General (Division of Classification), Washington, D. C., and retain the other in the files of the post office.

Editor-in-Chief, Dr. Paul J. Rosenheim, 100 William Street, New York City; Managing Editor, Dr. Frank C. Lewis, 100 William Street, New York City; Publishers, International Journal of Surgery Company, 100 William Street, New York City.

International Journal of Surgery Co., Owners. Stockholders: H. Edwin Lewis, M.D., 57 West 58th Street, New York City; Frank C. Lewis, M.D., 57 West 58th Street, New York City; Paul J. Rosenheim, M.D., 226 West 97th Street, New York City; Frank W. Hastings, Jr., 131 Overlook Avenue, Hackensack, New Jersey.

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FRANK C. LEWIS, M.D.,  
Managing Editor.

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Notary Public.

Commission expires March, 1913.

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- Abdominal Incisions (Jour.-Lanc., Nov. 1, 1912). R. E. Farr, Minneapolis.
- Amputation in Infantile Paralysis (Lancet, Sept. 28, 1912). E. M. Corner, C. E. Bashall, London.
- Aortic Aneurysm, Surgical Treatment of (An. of Surg., Nov., 1912). J. A. C. Macewen, Glasgow.
- Appendicitis in Females, the Right Rectus Incision for (Jour. Ia. S. M. S., Nov., 1912). J. R. Guthrie, Dubuque.
- Appendicitis. Results of Operation upon 619 Cases (Brit. Med. Jour., Sept. 28, 1912). W. G. Richardson, Newcastle-on-Tyne.
- Arthroplasty (Surg., Gyn. and Obst., Nov., 1912). J. M. Neff, Spokane, Wash.
- Benign and Malignant Ovarian, Parovarian, and Uterine Tumors in Pregnancy, Labor and the Puerperium (Jour. Mich. S. M. S., Nov., 1912). A. B. Keyes, Chicago.
- Biological Interpretation and Surgical Aspects in Painful Indigestion (Louisv. Mo. Jour. Med. and Surg., Nov., 1912). G. W. Crile, Cleveland.
- Bone Transplantation in General Surgery, Remarks on (Am. Med., Nov., 1912). A. A. Berg, New York.
- Breast Cancer, a New Method of Treating, Based on Observations Concerning the Nature and Causes of Recurrence (Am. Jour. Surg., Nov., 1912).
- Buried Animal Suture (Lanc.-Clin., Nov. 16, 1912). H. O. Marcy, Boston.
- Cancer of the Bladder (Jour. A. M. A., Nov. 16, 1912). R. F. O'Neil, Boston.
- Cancer of the Prostate (N. Y. S. Jour. Med., Nov., 1912). E. Fuller, New York.
- Cancer of the Womb, the Technique of the More Extensive Abdominal Operations for (Lancet, Sept. 14, 1912). F. J. McCann, London.
- Carcinoma of the Colon (Brit. Med. Jour., Sept. 28, 1912). V. Z. Cope, Paddington.
- Cervical Adenitis, with Special Reference to the X-ray Treatment of (Pa. Med. Jour., Nov., 1912). G. M. Dorrance, Phila.
- Constipation, Surgical Treatment of (Northw. Med., Nov., 1912). A. E. Rockey, Portland, Ore.
- Displaced and Movable Kidney in Women; Its Symptomatology, Diagnosis and Treatment (Canad. M. A. Jour., Nov., 1912). W. Cuthbertson, Chicago.
- Empyema, Suggestions for Operation and After-treatment of (Jour. A. M. A., Nov. 9, 1912). C. M. Remsen, Atlanta.
- Epilepsy, End Results of Head Surgery in (N. Y. S. Jour. Med., Nov., 1912). J. F. Munson, Sonyea, N. Y.
- Epilepsy, Indications for Surgical Intervention in (N. Y. S. Jour. Med., Nov., 1912). E. A. Sharp, Buffalo.
- Epilepsy, Practical Results of Surgery in (N. Y. S. Jour. Med., Nov., 1912). G. K. Collier, Sonyea, N. Y.
- Excision of Gastric Ulcer (Brit. Med. Jour., Oct. 5, 1912). J. F. Dobson, Leeds.
- Exophthalmic Goiter, Report on, Based on the Experience of the Members of the Chicago Surgical Society (Surg., Gyn. and Obst., Nov., 1912). W. Fuller, Chicago.
- Female Urethra, Surgery of (Jour. Mo. S. M. A., Nov., 1912). F. J. Taussig, St. Louis.
- Fistula in Ano, Treatment of, with Special Reference to Whitehead's Operation (An. of Surg., Nov., 1912). A. W. Elting, Albany.
- Fractures of the Skull (N. Y. Med. Jour., Oct. 26, 1912). E. P. Magruder, Washington, D. C.
- Fractures, Operative Treatment of (Lancet, Oct. 26, 1912). A. J. Walton, Greenwich.
- Fractures, Some Clinical and Experimental Observations on the Operative Treatment of. With Especial Reference to the Use of Intramedullary Pegs (Brit. Med. Jour., Oct. 26, 1912). E. W. H. Groves.
- Gallstones (N. Y. Med. Jour., Nov. 9, 1912). P. Syms, New York.
- Gallstones Coincident with Other Surgical Lesions (Jour. A. M. A., Nov. 2, 1912). J. G. Clark, Phila.
- Gangrenous Appendix (Tex. S. Jour. Med., Nov., 1912). W. H. Walker, Wichita Falls.
- Gastrojejunostomy. Some Reflections on (Lancet, Oct. 26, 1912). J. O'Connor, Buenos Aires.
- Head Injuries Affecting the Brain, Surgical Treatment of (Bost. M. and S. Jour., Nov. 14, 1912). J. Homans, Boston.
- Hernia of the Bladder into the Femoral Canal, with a Review of the Diagnostic Points of Femoral Hernia (Therap. Gaz., Nov., 1912). A. L. and G. E. Hertel, St. Louis.
- Injuries of the Spinal Column Affecting the Cord, Surgical Treatment of (Bost. M. and S. Jour., Nov. 14, 1912). J. T. Bottomley, Boston.
- Injuries of the Spinal Column, With and Without Fracture and Dislocation (Jour. A. M. A., Oct. 26, 1912). E. D. Fisher, New York.
- Injuries to the Semilunar Cartilages: A Personal Experience of 449 Cases of Operation (Lancet, Oct. 19, 1912). A. M. Martin, Newcastle-on-Tyne.
- Intracranial Division of the Auditory Nerve for Persistent Aural Vertigo (Surg., Gyn. and Obst., Nov., 1912). C. H. Frazier, Phila.
- Intramedullary Affections of the Spinal Cord, Surgery of (Jour. A. M. A., Oct. 26, 1912). C. A. Elsberg, New York.
- Ivory Dowel for Preserving the Finger in a Case of Enchondroma of a Phalanx Complicated by Fracture (An. of Surg., Nov., 1912). A. Primrose, Toronto.
- Kidney, Surgery of, Based on Case Records of Ten Years (O. S. Med. Jour., Nov., 1912). H. A. Baldwin, Columbus.
- Laceration of Large Arteries, Observations on (Brit. Med. Jour., Oct. 5, 1912). G. H. Edington, Glasgow.
- Lane's Kink of the Ileum (N. Y. Med. Jour., Nov. 9, 1912). C. F. Kivlin, Troy, N. Y.
- Malignant Tumors of the Mesentery (An. of Surg., Nov., 1912). P. E. Sawyer, Sioux City, Ia.
- Median Harelip (Lanc.-Clin., Nov. 2, 1912). J. Ransohoff, Cincinnati.
- Membranous Peritonitis (N. Y. Med. Jour., Oct. 26, 1912). A. E. Isaacs, New York.
- Nephrectomy Without Drainage for Tuberculous Kidney (Surg., Gyn. and Obst., Nov., 1912). W. J. Mayo, Rochester, Minn.
- Nephro-ureterectomy, Additional Cases of; Removal of Large Suppurating Kidneys (Am. Jour. Obst., Nov., 1912). G. H. Noble, Atlanta.
- Nitrous Oxid Anesthesia, Safety and Science in (Med. Rec., Nov. 2, 1912). R. C. Coburn, New York.
- Osseous Tuberculosis, Observations on the Situation of the Lesions of (Edinb. Med. Jour., Nov., 1912). J. Fraser, Edinburgh.
- Osteo-Arthritis of the Spine (Surg., Gyn. and Obst., Nov., 1912). F. D. Dickson, Phila.; A. H. O'Neal, Wayne, Pa.
- Ovarian Dermoids, the Application of Conservative Surgery to (Jour. A. M. A., Nov. 2, 1912). A. C. Martin, Seattle, Wash.
- Papillary Tumors of the Urinary Bladder, the Treatment of, with the High-Frequency (Oudin) Current (Jour. A. M. A., Nov. 16, 1912). E. Beer, New York.
- Peritonium, a Report on the Surgery of (Lancet, Oct. 19, 1912). H. Macnaughton-Jones, Dublin.
- Plastic Surgery of the Bones (Jour. A. M. A., Nov. 16, 1912). J. B. Roberts, Phila.
- Procidencia and Extensive Cystoceles, End-Results with Various Operative Procedures, Prior and Subsequent to the Menopause (Am. Jour. Obst., Nov., 1912). H. N. Vineberg, New York.
- Progressive Curvature of the Radius (Madelung's Deformity) Corrected by Osteotomy (Med. Rec., Oct. 26, 1912). H. L. Taylor, New York.
- Primary Sarcoma of the Peritoneum (An. of Surg., Nov., 1912). C. S. Venable, San Antonio.
- Prolapse of the Rectum, the Pathogenesis, Anatomy and Cure of (N. Y. S. Jour. Med., Nov., 1912). A. V. Moschowitz, New York.
- Prolapse of the Uterus and Bladder, Cure of, by a Plastic Operation (N. Y. Med. Jour., Nov. 9, 1912). L. G. Baldwin, New York.
- Prolapse of the Uterus, Interposition Operation for. Kolpohysteror-rhaphy (Am. Jour. Obst., Nov., 1912). I. S. Stone, Washington, D. C.
- Prophylactic Use of X-Rays Before and After Operation for Malignant Disease (Lancet, Sept. 14, 1912). R. Knox.
- Prostatic Enucleation, Technical Points in (Surg., Gyn. and Obst., Nov., 1912). J. B. Squier, New York.
- Purulent Infections of the Kidney, Conservative Surgery in (St. Paul Med. Jour., Nov., 1912). A. Schwyzer, St. Paul.
- Rectal Cancer, the Surgical Treatment of (Brit. Med. Jour., Oct. 5, 1912). Harrison Cripps, London.
- Reduction of the Fragments in Fractures of the Long Bones (An. of Surg., Nov., 1912). J. C. A. Gerster, New York.
- Relation of Warts and Moles to Malignant Growths (South. Med. Jour., Nov., 1912). G. J. Winthrop, Mobile.
- Retrocal Hernia; Report of a Case (Lanc.-Clin., Nov. 16, 1912). J. L. Ransohoff, Cincinnati.
- Ruptured Appendix, Treatment of (Northw. Med., Nov., 1912). W. B. Holden, Portland, Ore.
- Sacro-iliac Disease, Surgery of (Brit. Med. Jour., Oct. 5, 1912). W. I. de C. Wheeler, Dublin.
- Septic Thrombosis of the Left-Sigmoid, Cavernous and Inferior Petrosal Sinuses, with a Suggestion for Treatment in Future Cases (Lancet, Oct. 12, 1912). C. A. Ballance, London.
- Spinal Analgesia. Report on 400 Operations (Lancet, Oct. 12, 1912). J. W. H. Houghton.
- Spinal Anesthesia; with Report of Surgical Clinics (Surg., Gyn. and Obst., Nov., 1912). W. W. Babcock, Phila.
- Suprapubic Prostatectomy, Technic of the Operation of (Jour.-Lanc., Nov. 15, 1912). E. S. Judd, Rochester, Minn.
- Surgical Constipation (N. Y. S. Jour. Med., Nov., 1912). S. G. Gant, New York.
- Tetany Following Extirpation of the Thyroid (An. of Surg., Nov., 1912). F. J. Shepherd, Montreal.
- Thrombosis of the Mesenteric Vessels (An. of Surg., Nov., 1912). H. B. Delatour, Brooklyn, N. Y.
- Total Enucleation of the Prostate for Radical Cure of Enlargement, 1000 Cases of (Brit. Med. Jour., Oct. 5, 1912). P. J. Freyer, London.
- Transplantation of the Ovary in the Human Being: Record of Three Cases (Edinb. Med. Jour., Nov., 1912). H. S. Davidson.
- Tumors of the Larynx (Col. Medic., Nov., 1912). R. Levy, Denver.
- Tumors of the Urinary Bladder, Results in the Treatment of (Jour. A. M. A., Nov. 16, 1912). E. S. Judd, New York.
- Tying Knots of Ligatures and Sutures with One Hand (An. of Surg., Nov., 1912). G. H. Monks, Boston.
- Unsuccessful Surgery in Disorders of the Gall-ducts. Together with a Consideration of Naunyn's Cholangitis (Surg., Gyn. and Obst., Nov., 1912). A. G. Gerster, New York.
- Unusual Contents in Hernial Sacs (Lancet, Sept. 21, 1912). A. E. Barker, London.
- Urinary Tuberculosis, Diagnosis and Treatment of (Brit. Med. Jour., Oct. 5, 1912). E. Hurry Fenwick, London.
- Ureteral Stone, Removal of, by Cystoscopic Methods (N. Y. Med. Jour., Nov. 16, 1912). B. Lewis, St. Louis.
- Uterine Procidencia, with Rectocele and Cystocele. Operation for Extreme Cases of (Med. Rec., Nov. 16, 1912). J. R. Goffe, New York.
- Ventral Hernia, Traumatic or Incisional (Lancet, Oct. 5, 12, 1912). W. H. Battle, London.
- Volvulus of the Stomach (An. of Surg., Nov., 1912). H. H. Kerr, Washington, D. C.
- Wire Suture of Bone, a Note on the Material and Technic of, with Especial Reference to Suture of the Patella and the Advantages of Iron Wire (Lancet, Oct. 5, 1912). E. W. H. Groves, Bristol.
- Why is Direct Transfusion of Blood Often a Failure? (N. Y. Med. Jour., Nov. 9, 1912). A. L. Soresi, New York.
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